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...airy Herd Improvement Program

RECORD BOOK

...n for every size herd

OWNER SAMPLER WEIGH-A-DAY-A-MONTH

...1 SERVICE, U. S. DEPARTMENT OF AGRICULTURE

...er

ARS-44-67
(Vol. 36, No. 1)

January 1960

...ECORDS REPORTED DURING 1959

3 & 4 of v. 38

which is/are unavailable.

...re reported to the ...DHIA sires. DHIA ...3, 255 were Herd ...ciations. The number ...ociations is as follows:

	Herd Test records reported
	(number)
---	385
---	6, 634
---	3, 850
---	24, 039
---	13, 347

...each year, since 1946,

Year	Lactation records reported
	(number)
1953	501, 582
1954	667, 074
1955	636, 293
1956	658, 086
1957	565, 360
1958	786, 496
1959	927, 998

...ted during 1959 represent approx-...38 cows on standard test at the beginning

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA
OWNER SAMPLER
WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-67
(Vol. 36, No. 1)

Dairy-Herd-Improvement Letter

January 1960

927,998 LACTATION RECORDS REPORTED DURING 1959

During 1959, 927,998 lactatio

re reported to the
DHIA sires. DHIA
3, 255 were Herd
ciations. The number
ociations is as follows:

This volume is bound without nos. 3 & 4 of v. 38

and no. 5 of v. 39

which is/are unavailable.

	Herd Test records reported
	(number)
---	385
---	6,634
---	3,850
---	24,039
---	13,347

each year, since 1946,

Year	Lactation records reported	Year	Lactation records reported
	(number)		(number)
1946	183,884	1953	501,582
1947	250,811	1954	667,074
		1955	636,293
		1956	658,086
		1957	565,360
		1958	786,496
		1959	927,998

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AT LEAST ONE OF THE EDGES OF THIS MAGAZINE HAS BEEN LEFT UNTRIMMED, BECAUSE OF AN EXTREMELY NARROW MARGIN.

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA
OWNER SAMPLER
WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter
ARS-44-67
(Vol. 36, No. 1)

January 1960

927, 998 LACTATION RECORDS REPORTED DURING 1959

During 1959, 927, 998 lactation records were reported to the Dairy Cattle Research Branch for use in proving DHIA sires. DHIA supervisors reported 879, 743 of these records; 48, 255 were Herd Test records reported by the various Breed Associations. The number of Herd Test records reported by the various associations is as follows:

	Herd Test records reported
	(number)
American Dairy Cattle Club ---	385
Ayrshire Breeders' Association ---	6, 634
Brown Swiss Cattle Breeders Association ---	3, 850
American Guernsey Cattle Club ---	24, 039
American Jersey Cattle Club ---	13, 347

The number of lactation records reported each year, since 1946, is shown below:

Year	Lactation records reported	Year	Lactation records reported
	(number)		(number)
1946	183, 884	1953	501, 582
1947	250, 811	1954	667, 074
1948	285, 083	1955	636, 293
1949	391, 067	1956	658, 086
1950	471, 721	1957	565, 360
1951	540, 953	1958	786, 496
1952	485, 949	1959	927, 998

The 927, 998 records reported during 1959 represent approximately 51 percent of the 1, 607, 538 cows on standard test at the beginning of the year.

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PRODUCTION RECORDS REPORTED TO THE DAIRY HERD IMPROVEMENT SECTION BY STATE EXTENSION SERVICES, FOR THE PERMANENT FILES DURING 1958 AND 1959

	1959									1958	
			Herd Test Records Reported by --								
State	Cows on test in all association herds on January 1	Production records reported 1/ 2/	American Dairy Cattle Club	Ayrshire Breeders Association	Brown Swiss Cattle Breeders' Association	American Guernsey Cattle Club	American Jersey Cattle Club	Total records reported 3/		Production records reported 2/	
	Number	Number	Number	Number	Number	Number	Number	Number	Percent	Number	Percent
Maine	19,270	13,926	-	166	-	197	149	14,438	74.9	11,326	63.3
N. H	10,909	6,358	-	121	-	239	89	6,807	62.4	7,184	68.7
Vt	42,608	25,578	-	440	39	277	525	26,859	60.3	20,450	51.3
Mass	21,109	16,973	26	445	159	598	429	18,630	88.3	15,281	75.3
R. I	2,795	1,106	-	110	-	125	114	1,455	52.1	1,291	45.1
Conn	21,929	14,336	-	297	288	1,093	327	16,341	74.5	15,476	72.3
N. Y	142,424	176,012	59	1,047	360	1,733	767	179,978	126.4	179,407	128.0
Pa	121,174	149,150	-	832	88	1,400	213	151,683	125.2	84,676	64.6
N. J	25,636	12,117	-	48	110	868	165	13,308	51.9	11,225	41.1
Md	40,743	35,249	268	382	66	963	225	37,153	91.2	24,665	62.2
Del	3,419	3,369	-	70	-	153	-	3,592	105.1	2,303	65.4
Va	55,590	42,382	-	54	33	1,044	244	43,757	78.7	35,146	67.8
W. Va	7,843	5,618	-	48	17	100	57	5,840	74.5	3,530	46.0
Ky	12,960	3,830	-	-	63	185	329	4,407	34.0	5,215	41.3
N. C	25,892	15,262	-	95	-	1,345	320	17,022	65.7	20,713	86.5
S. C	8,434	2,699	-	78	39	740	244	3,800	45.1	2,938	33.8
Ga	15,188	4,219	-	19	6	184	265	4,693	30.9	3,710	23.4
Fla	20,919	4,070	-	87	-	1,053	384	5,594	26.7	8,470	47.0
Ala	15,605	5,938	-	-	-	85	307	6,330	40.6	4,800	31.1
Miss	6,231	1,258	-	6	4	421	222	1,911	30.7	1,689	30.1
Tenn	12,974	2,140	-	8	-	238	681	3,067	23.6	2,003	16.4
La	3,416	550	-	42	-	138	135	865	25.3	2,055	48.0
Ark	1,063	157	-	-	4	76	172	409	38.5	535	124.4
Ohio	55,885	23,543	-	587	522	2,333	1,633	28,618	51.2	33,111	65.8
Ind	35,083	11,212	32	120	121	1,072	401	12,958	36.9	12,834	36.8
Ill	55,829	34,044	-	179	346	828	435	35,832	64.2	33,876	62.4
Mich	54,897	56,242	-	108	212	976	420	57,958	105.6	30,505	55.0
Wis	94,702	37,721	-	71	407	445	259	38,903	41.1	38,825	42.1
Minn	97,592	56,041	-	90	105	381	210	56,827	58.2	56,198	62.2
Iowa	49,284	32,319	-	107	319	544	331	33,620	68.2	28,673	62.4
Mo	21,442	8,120	-	-	109	241	227	8,697	40.6	8,177	38.1
N. Dak	4,329	2,576	-	-	12	18	-	2,606	60.2	2,823	73.2
S. Dak	5,666	1,005	-	11	62	45	-	1,123	19.8	868	16.4
Nebr	11,720	1,868	-	6	21	201	36	2,132	18.2	3,307	29.1
Kans	24,524	11,746	-	438	34	279	102	12,599	51.4	12,949	52.7
Okla	6,897	1,015	-	129	18	130	216	1,508	21.9	2,485	40.3
Tex	16,855	4,939	-	17	66	207	773	6,002	35.6	6,362	37.0
Mont	5,302	1,039	-	-	29	49	24	1,141	21.5	1,257	24.4
Idaho	22,513	6,776	-	12	11	290	249	7,338	32.6	6,645	32.5
Wyo	1,625	474	-	-	-	1	-	475	29.2	178	12.6
Nev	1,963	11	-	-	-	177	68	256	13.0	250	17.1
Utah	14,166	11,099	-	-	-	155	12	11,266	79.5	3,579	25.0
Colo	13,576	2,053	-	43	60	72	29	2,257	16.6	1,404	12.4
N. Mex	3,053	705	-	-	5	181	117	1,008	33.0	723	26.3
Ariz	23,503	1,992	-	57	-	95	22	2,166	9.2	1,435	6.2
Wash	46,064	14,927	-	58	6	861	281	16,133	35.0	17,243	41.1
Oreg	26,411	13,972	-	6	73	601	849	15,501	58.7	14,608	59.7
Calif	271,566	1,829	-	200	36	602	290	2,957	1.1	3,872	1.5
P. R	4,744	87	-	-	-	-	-	87	1.8	60	1.1
Hawaii	216	91	-	-	-	-	-	91	42.1	161	73.9
Alaska	-	-	-	-	-	-	-	-	-	-	-
U. S	1,607,538	879,743	385	6,634	3,850	24,039	13,347	927,998	57.7	786,496	50.8

1/ Includes cows enrolled since January 1, 1959.
2/ Production records reported on DHIA-718, DHIA-1096 and DHIA-1095.
3/ Records returned to States because of inconsistent or incomplete data.

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NUMBER OF RECORDS PROCESSED IN DHIA COMPUTING CENTERS*
(as reported by State Extension Dairymen, January 1, 1960)

State	DHIA Records		Owner-Sampler	
	No. Herds	No. Cows	No. Herds	No. Cows
Ala	106	7,722	-	-
Ariz	56	5,398	2	242
Ark	27	933	2	83
Calif	1	162	-	-
Colo	131	6,837	21	544
Conn	211	9,415	34	927
Del	108	3,640	26	547
Fla	3	395	-	-
Ga	22	2,000	-	-
Idaho	6	467	7	88
Ill	628	19,268	157	3,337
Iowa	621	19,826	129	2,762
Kans	62	2,296	3	60
Ky	10	360	-	-
Me	139	5,007	32	895
Md	335	14,585	58	1,996
Mass	553	22,100	102	2,206
Mich	1,949	60,851	976	23,360
Minn	337	10,467	78	1,686
Miss	21	1,052	-	-
Mo	41	1,305	-	-
Mont	33	1,656	5	176
Nebr	104	4,300	67	1,657
N. Hamp	88	3,244	6	115
N. Jer	96	5,280	23	1,265
N. Mex	33	2,794	2	50
N. Y	1,687	65,000	1,055	29,000
N. C	339	15,422	6	233
N. Dak	98	2,752	48	877
Ohio	141	4,107	13	379
Ore	79	4,080	6	92
Pa	4,456	139,602	959	23,081
R. I	21	777	-	-
S. C	77	5,645	-	-
S. Dak	40	1,249	8	214
Tex	1	39	-	-
Utah	488	16,484	26	374
Vt	265	9,651	81	2,529
Va	148	7,712	1	25
Wash	197	8,961	17	319
W. Va	55	1,709	-	-
Wis	1,139	40,093	1,089	28,422
Wyo	43	1,419	44	2,018
Total	14,995	536,062	5,083	129,559

---

*WADAM Records: Louisiana, 136 herds, 6,191 cows; Massachusetts, 1 herd, 70 cows; Michigan, 88 herds, 2,131 cows; Nebraska, 10 herds, 200 cows; Utah, 34 herds, 680 cows. Total - 269 herds and 9,272 cows.

NUMBER OF STATE DHIA'S
(as reported by State Extension Dairymen, Jan. 1, 1960)

Eighteen (18) States have State DHIA organizations. They are:

- Alabama
- Connecticut
- Delaware
- Maryland
- Massachusetts
- Michigan
- Missouri
- New Hampshire
- New York
- Ohio
- Oregon
- Pennsylvania
- Rhode Island
- Utah
- Vermont
- Virginia
- Washington
- Wisconsin

Eight (8) States contemplate organizing State DHIA'S. They are:

- Arkansas
- Colorado
- Kentucky
- Maine
- New Jersey
- North Carolina
- Oklahoma
- Texas

PROGRESS IN AUTOMATING DHIA SIRE PROVING PROCEDURES

In the October 1959 DHI Letter it was announced, " Proved Sire Records Go Electronic." The Branch's manual punch card system of compiling proved sire records is being converted to electronic data processing magnetic tape 705-III procedures.

This is a report on the conversion operations. The master file of more than 6,000,000 lactation records have been placed on tape (about 125 miles of it) and the actual machine operation of converting procedures and setting the system up for tape operation is scheduled to begin about February 15, 1960. The time required to complete the conversion operations depends on the amount of time available on the 705-III for processing DHIA records. It is expected, however, that the first DHIA proved sire records will be produced on an automated basis in April 1960.

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
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OWNER SAMPLER
WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-68
Dairy-Herd-Improvement Letter (Vol. 36, No. 2)

February 1960

DAIRY RECORDKEEPING CONTINUES TO INCREASE

On January 1, 1960, more herds and cows than ever before were included in the three recordkeeping plans, DHIA, OS, and WADAM, which collectively make up the National Cooperative Dairy Herd Improvement Program. On January 1, 1960, the Program included 68,687 herds and 2,439,043 cows. This number of cows represents 12.6 percent of the milk cows of the nation.

STANDARD DHIA - 1,746,752 cows are included in the Standard Recordkeeping Plan, this is 139,214, or 8.7 percent more cows than were in this plan January 1, 1959.

OWNER-SAMPLER - 615,899 cows are included in the Owner-Sampler Recordkeeping Plan. This is 65,983, or 12.0 percent more than were in the plan January 1, 1959.

WEIGH-A-DAY-A-MONTH - 76,392 cows are included in the WADAM Recordkeeping Plan. This is 1,578, or 2.1 percent more cows than were in the plan January 1, 1959.

Complete data on the status of the National Cooperative Dairy Herd Improvement Program by State, as reported by State Extension Dairymen, are given on the following pages.

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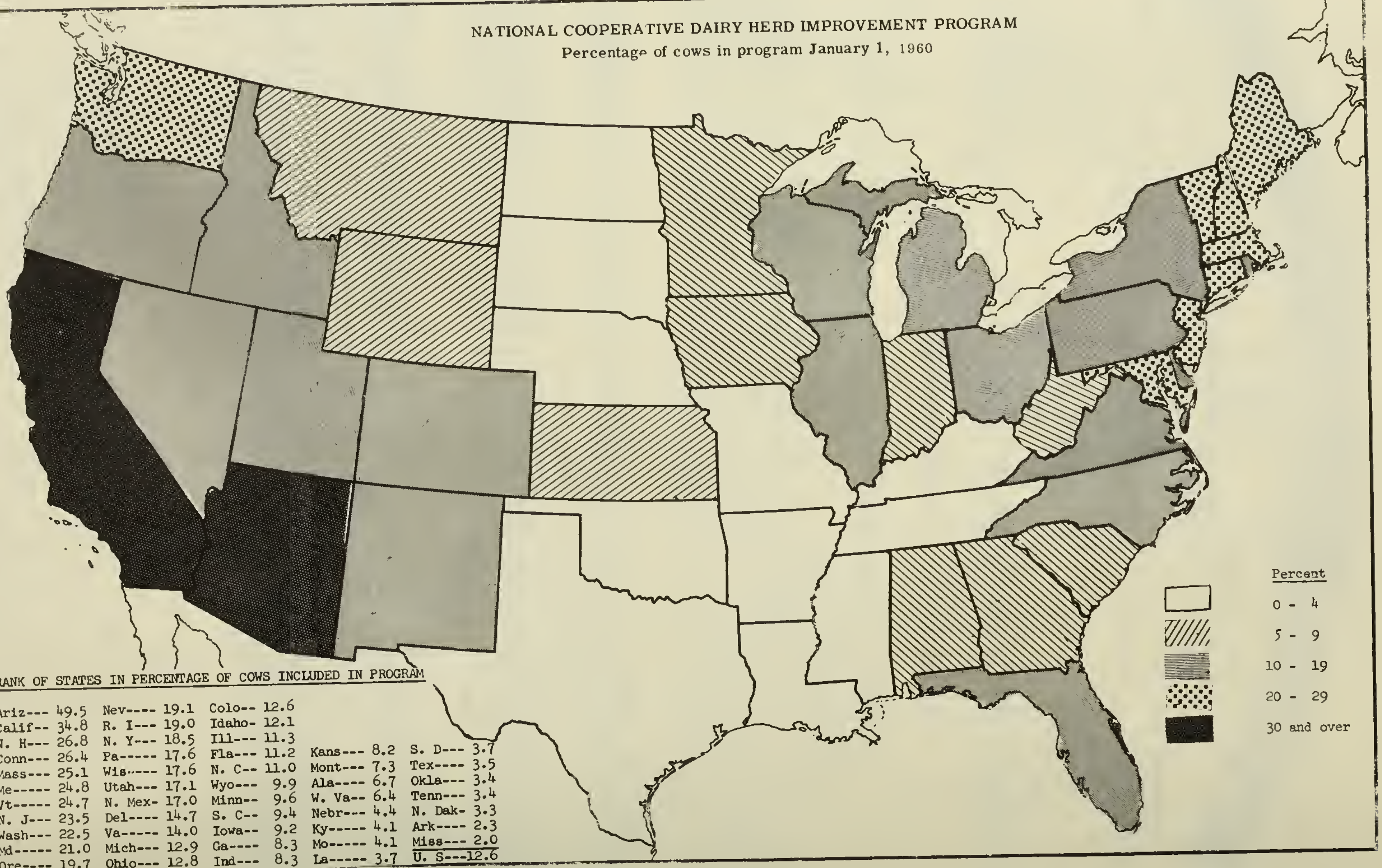
NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM

Percentage of cows in program January 1, 1960



RANK OF STATES IN PERCENTAGE OF COWS INCLUDED IN PROGRAM

Ariz---	49.5	Nev----	19.1	Colo--	12.6				
Calif--	34.8	R. I---	19.0	Idaho-	12.1				
N. H---	26.8	N. Y---	18.5	Ill---	11.3				
Conn---	26.4	Pa-----	17.6	Fla---	11.2	Kans---	8.2	S. D---	3.7
Mass---	25.1	Wis----	17.6	N. C--	11.0	Mont---	7.3	Tex----	3.5
Me-----	24.8	Utah---	17.1	Wyo---	9.9	Ala----	6.7	Okla---	3.4
Vt-----	24.7	N. Mex-	17.0	Minn--	9.6	W. Va--	6.4	Tenn---	3.4
N. J---	23.5	Del----	14.7	S. C--	9.4	Nebr---	4.4	N. Dak-	3.3
Wash---	22.5	Va-----	14.0	Iowa--	9.2	Ky-----	4.1	Ark----	2.3
Md-----	21.0	Mich---	12.9	Ga----	8.3	Mo-----	4.1	Miss---	2.0
Ore----	19.7	Ohio---	12.8	Ind---	8.3	La-----	3.7	U. S---	12.6

DAIRY HERD IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES
(Active January 1, 1960)

State	Associations	Supervisors	Herds	Cows	Average cows per herd	Average per Supervisor		Milk cows in United States 1/	
						Herds	Cows	Total	in DHIA's
	Number	Number	Number	Number	Number	Number	Number	Thousands	Percent
Me	15	34	656	20,980	32.0	19.3	617	97	21.6
N. H	9	21	318	11,742	36.9	15.1	559	53	22.2
Vt	51	69	1,115	45,462	40.8	16.2	659	260	17.5
Mass	13	27	553	22,100	40.0	20.5	819	97	22.8
R. I	2	3	62	2,764	44.6	20.7	921	15	18.4
Conn	8	27	508	22,035	43.4	18.8	816	94	23.4
N. Y	49	201	3,877	151,049	39.0	19.3	751	1,256	12.0
Pa	59	192	4,456	139,606	31.3	23.2	727	928	15.0
N. J	10	28	566	27,516	48.6	20.2	983	137	20.1
Md	18	47	990	44,181	44.6	21.1	940	227	19.5
Del	3	6	121	3,595	29.7	20.2	599	30	12.0
Va	60	61	1,126	50,961	45.3	18.5	835	368	13.8
W. Va	15	20	245	8,736	35.7	12.3	437	168	5.2
Ky	40	46	456	17,348	38.0	9.9	377	554	3.1
N. C	43	48	701	32,084	45.8	14.6	668	351	9.1
S. C	17	18	154	10,557	68.6	8.6	587	141	7.5
Ga	26	26	324	19,715	60.8	12.5	758	280	7.0
Fla	10	14	124	21,620	174.4	8.9	1,544	223	9.7
Ala	21	19	249	17,803	71.5	13.1	937	318	5.6
Miss	9	10	133	7,678	57.7	13.3	768	453	1.7
Tenn	28	28	384	16,283	42.4	13.7	582	573	2.8
La	8	9	59	3,966	67.2	6.6	441	274	1.4
Ark	6	6	57	1,918	33.6	9.5	320	283	.7
Ohio	81	147	2,087	60,137	28.8	14.2	409	767	7.8
Ind	61	101	1,249	35,789	28.7	12.4	354	488	7.3
Ill	85	96	1,791	58,272	32.5	18.7	607	676	8.6
Mich	82	110	1,949	60,851	31.2	17.7	553	745	8.2
Wis	70	141	2,828	98,986	35.0	20.1	702	2,192	4.5
Minn	158	175	3,786	107,188	28.3	21.6	613	1,305	8.2
Iowa	75	99	1,889	54,454	28.8	19.1	550	906	6.0
Mo	44	45	661	21,714	32.9	14.7	483	734	3.0
N. Dak	15	15	187	5,403	28.9	12.5	360	312	1.7
S. Dak	14	20	189	5,883	31.1	9.5	294	274	2.1
Nebr	28	32	346	13,240	38.3	10.8	414	360	3.7
Kans	51	56	813	26,110	32.1	14.5	466	375	7.0
Okla	21	19	170	7,348	43.2	8.9	387	338	2.2
Tex	26	29	361	21,866	60.6	12.4	754	659	3.3
Mont	9	9	122	5,559	45.6	13.6	618	88	6.3
Idaho	18	36	861	25,441	30.0	23.9	707	216	11.8
Wyo	6	6	46	1,441	31.3	7.7	240	35	4.1
Nev	3	5	44	3,061	69.6	8.8	612	16	19.1
Utah	20	24	480	16,266	33.9	20.0	678	101	16.1
Colo	25	26	317	15,514	48.9	12.2	597	132	11.8
N. Mex	5	6	42	4,055	96.5	7.0	676	49	8.3
Ariz	6	16	228	25,951	113.8	14.3	1,622	53	49.0
Wash	25	50	941	43,626	46.4	18.8	873	251	17.4
Oreg	19	34	568	28,737	50.6	16.7	845	179	16.1
Calif	33	131	2,068	295,536	143.0	15.8	2,256	891	33.2
Hawaii	5	5	5	203	40.6	1.0	41	(2)	1.6
Alaska	0	0	0	0	-	-	-	-	-
P. R	4	4	31	4,422	142.6	7.8	1,106	-	-
Total or average	1,509	2,397	41,293	1,746,752	42.3	17.2	729	19,322	9.0

1/ Estimated by the Agricultural Marketing Service; number of milk cows on farms during year excluding heifers not yet fresh.

2/ 13,400; estimated by the University of Hawaii.

GROWTH OF DAIRY-HERD-IMPROVEMENT ASSOCIATION WORK IN THE UNITED STATES (1906-1960 inclusive)

Year	Associations	Supervisors	Herds on test	Cows on test	Average cows per herd	Average production of cows on test: Milk	Test	Butterfat
	Number	Number	Number	Number	Number	Pounds	Percent	Pounds
1906---	1	----	31	239	7.7	5,300	4.1	215
1907---	4	----	----	1,606	---	5,366	4.1	220
1908---	6	----	----	3,921	---	-----	---	---
1909---	25	----	----	11,921	---	-----	---	---
1910---	40	----	----	1/ 25,000	---	1/ 5,730	4.0	1/ 227
1911---	64	----	----	1/ 40,000	---	-----	---	---
1912---	82	----	----	1/ 43,000	---	-----	---	---
1913---	100	----	----	47,150	---	-----	---	---
1914---	163	----	----	73,280	---	-----	---	---
1915---	211	----	----	105,526	---	-----	---	---
1916---	346	----	----	150,677	---	-----	---	---
1917---	459	----	11,720	216,831	18.5	-----	---	---
1918---	353	----	9,778	172,518	17.6	-----	---	---
1919---	385	----	10,000	167,313	16.7	-----	---	---
1920---	468	----	11,948	203,472	17.0	6,175	4.0	247
1921---	452	----	11,209	193,928	17.3	-----	---	---
1922---	513	----	12,508	215,321	17.2	-----	---	---
1923---	627	----	16,357	277,010	16.9	-----	---	---
1924 2/	---	----	----	-----	---	-----	---	---
1925---	732	----	18,677	307,073	16.4	7,189	4.0	284
1926---	777	----	19,540	327,653	16.8	7,331	4.0	290
1927---	837	----	21,128	362,014	17.1	7,411	4.0	293
1928---	947	----	23,327	414,891	17.8	7,476	4.0	296
1929---	1,090	----	26,182	465,804	17.8	7,498	4.0	298
1930---	1,143	----	27,888	507,549	18.2	7,642	4.0	303
1931---	1,112	----	26,308	510,714	19.4	7,812	3.9	306
1932---	1,005	----	20,351	427,044	21.0	7,858	3.9	310
1933---	881	----	15,447	358,501	23.2	7,849	4.0	313
1934---	793	----	13,694	325,837	23.8	8,015	4.0	322
1935---	809	----	15,573	364,218	23.4	7,977	4.0	322
1936---	876	----	17,344	404,412	23.3	7,912	4.0	319
1937---	992	----	20,772	496,562	23.9	7,923	4.0	320
1938---	1,106	----	23,701	558,993	23.6	7,831	4.0	317
1939---	1,228	----	25,949	625,284	24.1	7,977	4.1	323
1940---	1,300	----	27,948	676,141	24.2	8,133	4.1	331
1941---	1,383	----	31,381	763,502	24.3	8,225	4.1	335
1942---	1,421	----	32,957	816,117	24.8	8,323	4.1	339
1943---	1,057	----	24,155	616,972	25.5	8,325	4.1	338
1944---	954	----	20,825	561,587	27.0	8,296	4.1	336
1945---	949	----	21,254	577,200	27.2	8,592	4.0	346
1946---	1,124	----	23,331	627,878	27.0	8,635	4.0	349
1947---	1,426	----	28,812	775,546	26.9	8,638	4.0	348
1948---	1,668	----	33,274	886,129	26.6	8,675	4.0	350
1949---	1,787	----	35,851	943,939	26.3	8,907	4.0	359
1950---	1,973	----	40,100	1,088,872	27.2	9,172	4.0	370
1951---	2,143	----	42,949	1,186,615	27.6	9,195	4.0	370
1952---	2,109	----	40,105	1,166,297	29.1	9,192	4.0	366
1953---	2,151	----	40,983	1,226,588	29.9	9,253	4.0	368
1954---	2,175	----	41,254	1,311,698	31.8	9,363	4.0	372
1955---	2,288	----	41,240	1,333,866	32.3	9,502	3.9	375
1956---	2,266	----	40,984	1,406,306	34.4	9,713	3.9	383
1957 3/	1,700	2,310	41,638	1,479,799	35.5	9,894	3.9	389
1958---	1,544	2,293	39,985	1,548,884	38.7	10,068	3.9	394
1959---	1,500	2,337	40,284	1,607,538	39.9	-----	---	---
1960---	1,509	2,397	41,293	1,746,752	42.3	-----	---	---

1/ Estimated.
2/ Date for collecting data changed in 1924 from July 1 to January 1.
3/ Prior to 1957 associations were counted on the basis of supervisor circuits.

OWNER-SAMPLER DAIRY RECORDKEEPING IN THE UNITED STATES
(January 1, 1960)

State	Counties	Herds	Cows	Milk cows in United States 1/	
				Total	in O-S
	Number	Number	Number	Thousands	Percent
Me	11	116	2,868	97	3.0
N. H	10	95	2,239	53	4.2
Vt	14	594	18,482	260	7.1
Mass	11	102	2,206	97	2.3
R. I	2	5	90	15	.6
Conn	7	93	2,650	94	2.8
N. Y	48	2,905	80,558	1,256	6.4
Pa	60	959	23,081	928	2.5
N. J	8	41	4,652	137	3.4
Md	13	103	3,277	227	1.4
Del	3	31	672	30	2.2
Va	6	30	565	368	.2
W. Va	2	8	331	168	.2
Ky	1	3	60	554	(2)
N. C	10	29	791	351	.2
S. C	0	0	0	141	0
Ga	2	2	60	280	(2)
Fla	2	3	675	223	.3
Ala	0	0	0	318	0
Miss	0	0	0	453	0
Tenn	3	4	100	573	(2)
La	0	0	0	274	0
Ark	5	12	288	283	.1
Ohio	80	1,930	37,819	767	4.9
Ind	12	207	4,348	488	.9
Ill	28	440	10,934	676	1.6
Mich	66	1,415	33,265	745	4.5
Wis	69	11,011	287,522	2,192	13.1
Minn	53	770	17,387	1,305	1.3
Iowa	86	1,365	26,775	906	3.0
Mo	22	64	1,318	734	.2
N. Dak	10	116	1,698	312	.5
S. Dak	31	221	4,265	274	1.6
Nebr	30	80	2,000	360	.6
Kans	24	104	2,623	375	.7
Okla	9	60	1,420	338	.4
Tex	2	2	54	659	(2)
Mont	6	29	747	88	.8
Idaho	3	12	260	216	.1
Wyo	7	44	2,018	35	5.8
Nev	0	0	0	16	0
Utah	7	26	374	101	.4
Colo	12	37	1,088	132	.8
N. Mex	9	32	3,762	49	7.7
Ariz	3	3	308	53	.6
Wash	17	563	12,697	251	5.1
Oreg	16	195	5,040	179	2.8
Calif	27	403	14,332	891	1.6
Hawaii	0	0	0	-	0
Alaska	2	10	200	-	0
P. R	0	0	0	-	0
Total	849	24,274	615,899	19,322	3.2

1/ Estimated by the Agricultural Marketing Service; number of milk cows on farms during year excluding heifers not yet fresh.

2/ Less than one-tenth of one percent.

WEIGH-A-DAY-A-MONTH DAIRY RECORDKEEPING IN THE UNITED STATES
(January 1, 1960)

State	Counties	Herds	Cows	Milk cows in United States 1/ Total	Milk cows in United States 1/ in WADAM
	Number	Number	Number	Thousands	Percent
Me	3	8	174	97	.2
N. H	3	8	243	53	.5
Vt	3	8	200	260	.1
Mass	1	1	70	97	.1
R. I	0	0	0	15	0
Conn	2	3	116	94	.1
N. Y	4	25	500	1,256	(2)
Pa	12	15	313	928	(2)
N. J	3	3	84	137	.1
Md	0	0	0	227	0
Del	2	7	140	30	.5
Va	8	10	170	368	(2)
W. Va	24	79	1,662	168	1.0
Ky	45	260	5,050	554	.9
N. C	37	236	5,846	351	1.7
S. C	19	83	2,736	141	1.9
Ga	19	71	3,400	280	1.2
Fla	8	19	2,774	223	1.2
Ala	28	93	3,418	318	1.1
Miss	6	66	1,500	453	.3
Tenn	35	145	3,062	573	.5
La	28	136	6,191	274	2.3
Ark	30	165	4,290	283	1.5
Ohio	2	20	466	767	.1
Ind	5	20	441	488	.1
Ill	47	355	7,221	676	1.1
Mich	33	88	2,131	745	.3
Wis	5	12	274	2,192	(2)
Minn	7	29	517	1,305	(2)
Iowa	15	136	1,805	906	.2
Mo	58	338	6,932	734	.9
N. Dak	26	194	3,059	312	1.0
S. Dak	0	0	0	274	0
Nebr	10	40	605	360	.2
Kans	25	100	2,000	375	.5
Okla	22	68	2,840	338	.8
Tex	12	29	1,330	659	.2
Mont	5	5	145	88	.2
Idaho	7	38	437	216	.2
Wyo	0	0	0	35	0
Nev	0	0	0	16	0
Utah	7	34	680	101	.7
Colo	0	0	0	132	0
N. Mex	8	16	524	49	1.1
Ariz	0	0	0	53	0
Wash	1	1	39	251	(2)
Oreg	20	125	1,500	179	.8
Calif	0	0	0	891	0
Hawaii	2	3	133	-	0
Alaska	0	0	0	-	0
P. R	22	27	1,374	-	0
Total	659	3,119	76,392	19,322	.4

1/ Estimated by the Agricultural Marketing Service; number of milk cows on farms during year excluding heifers not yet fresh.

2/ Less than one-tenth of one percent.

THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM
(January 1, 1960)

State	Standard DHIA		Owner-Sampler		Weigh-a-Day-a-Month		Total		Milk cows in U.S.	
	Herds	Cows	Herds	Cows	Herds	Cows	Herds	Cows	Total[1/]	In all plans [2/]
	Number	Number	Number	Number	Number	Number	Number	Number	Thousands	Percent
Me	656	20,980	116	2,868	8	174	780	24,022	97	24.8
N. H.	318	11,742	95	2,239	8	243	421	14,224	53	26.8
Vt	1,115	45,462	594	18,482	8	200	1,717	64,144	260	24.7
Mass	553	22,100	102	2,206	1	70	656	24,376	97	25.1
R. I.	62	2,764	5	90	0	0	67	2,854	15	19.0
Conn	508	22,035	93	2,650	3	116	604	24,801	94	26.4
N. Y.	3,877	151,049	2,905	80,558	25	500	6,807	232,107	1,256	18.5
Pa	4,456	139,606	959	23,081	15	313	5,430	163,000	928	17.6
N. J.	566	27,516	41	4,652	3	84	610	32,252	137	23.5
Md	990	44,181	103	3,277	0	0	1,093	47,458	227	21.0
Del	121	3,595	31	672	7	140	159	4,407	30	14.7
Va	1,126	50,961	30	565	10	170	1,166	51,696	368	14.0
W. Va	245	8,736	8	331	79	1,662	332	10,729	168	6.4
Ky	456	17,348	3	60	260	5,050	719	22,458	554	4.1
N. C.	701	32,084	29	791	236	5,846	967	38,721	351	11.0
S. C.	154	10,557	0	0	83	2,736	237	13,293	141	9.4
Ga	324	19,715	2	60	71	3,400	397	23,175	280	8.3
Fla	124	21,620	3	675	19	2,774	146	25,069	223	11.2
Ala	249	17,803	0	0	93	3,418	342	21,221	318	6.7
Miss	133	7,678	0	0	66	1,500	199	9,178	453	2.0
Tenn	384	16,283	4	100	145	3,062	533	19,445	573	3.4
La	59	3,966	0	0	136	6,191	195	10,157	274	3.7
Ark	57	1,918	12	288	165	4,290	234	6,496	283	2.3
Ohio	2,087	60,137	1,930	37,819	20	466	4,037	98,422	767	12.8
Ind	1,249	35,789	207	4,348	20	441	1,476	40,578	488	8.3
Ill	1,791	58,272	440	10,934	355	7,221	2,586	76,427	676	11.3
Mich	1,949	60,851	1,415	33,265	88	2,131	3,452	96,247	745	12.9
Wis	2,828	98,986	11,011	287,522	12	274	13,851	386,782	2,192	17.6
Minn	3,786	107,188	770	17,387	29	517	4,585	125,092	1,305	9.6
Iowa	1,889	54,454	1,365	26,775	136	1,805	3,390	83,034	906	9.2
Mo	661	21,714	64	1,318	338	6,932	1,063	29,964	734	4.1
N. Dak.	187	5,403	116	1,698	194	3,059	497	10,160	312	3.3
S. Dak.	189	5,883	221	4,265	0	0	410	10,148	274	3.7
Nebr	346	13,240	80	2,000	40	605	466	15,845	360	4.4
Kans	813	26,110	104	2,623	100	2,000	1,017	30,733	375	8.2
Okla	170	7,348	60	1,420	68	2,840	298	11,608	338	3.4
Tex	361	21,866	2	54	29	1,330	392	23,250	659	3.5
Mont	122	5,559	29	747	5	145	156	6,451	88	7.3
Idaho	861	25,441	12	260	38	437	911	26,138	216	12.1
Wyo	46	1,441	44	2,018	0	0	90	3,459	35	9.9
Nev	44	3,061	0	0	0	0	44	3,061	16	19.1
Utah	480	16,266	26	374	34	680	540	17,320	101	17.1
Colo	317	15,514	37	1,088	0	0	354	16,602	132	12.6
N. Mex.	42	4,055	32	3,762	16	524	90	8,341	49	17.0
Ariz	228	25,951	3	308	0	0	231	26,259	53	49.5
Wash	941	43,626	563	12,697	1	39	1,505	56,362	251	22.5
Oreg	568	28,737	195	5,040	125	1,500	888	35,277	179	19.7
Calif	2,068	295,536	403	14,332	0	0	2,471	309,868	891	34.8
Hawaii	5	203	0	0	3	133	8	336	--	--
Alaska	10	200	0	0	0	0	10	200	--	--
P. R.	31	4,422	0	0	27	1,374	58	5,796	--	--
Total or average	41,293	1,746,752	24,274	615,899	3,119	76,392	68,687	2,439,043	19,322	12.6

1/ Estimated by the Agricultural Marketing Service; number of milk cows on farms during year excluding heifers not yet fresh.

2/ Percentage of cows included in the National Cooperative Dairy Herd Improvement Program.

COUNTIES, BY STATE WITH 20% OR MORE COWS INCLUDED IN THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM

(January 1, 1960)

State	County (Name)	Cows (%)
ALABAMA		
	Lee	21
	Montgomery	21
	Russell	20
ARIZONA		
	Pima	75
	Maricopa	73
	Pinal	73
	Greenlee	72
	State	62
	Graham	60
	Yuma	34
	Cochise	28
CALIFORNIA		
	Santa Barbara	57
	Napa	56
	Contra Costa	51
	San Diego	50
	Sonoma	49
	Kern	47
	San Bernardino	47
	Marin	45
	Orange	44
	San Joaquin	44
	Fresno	41
	Stanislaus	39
	Tulare	39
	Merced	36
	Shasta	36
	Los Angeles	34
	Madera	34
	Del Norte	33
	Santa Clara	33
	Santa Cruz	32
	Placer-Nevada	30
	Sacramento	30
	Monterey	29
	San Luis Obispo	29
	Alameda	27
	Solano-Yolo	27
	Tehama	27
	Mendocino	25
	Humboldt	23
	Riverside	23
	Glenn	20
	Kings	20
COLORADO		
	Weld	30
	Pueblo	26
	Huerfano	24
	Larimer	22
	Jefferson	20
CONNECTICUT		
	Litchfield	32
	Tolland	32
	Windham	32
	Fairfield	30
	Middlesex	28
	New London	27
	Hartford	20
	New Haven	20
DELAWARE		
	Sussex	26
FLORIDA		
	Putnam	71
	Leon	52
	Manatee	51
	Sarasota	49
	Volusia	46
	Orange	45
	Pasco	41
	Highlands	39
	Glades	35
	Seminole	32
FLORIDA (con't.)		
	St. Johns	29
	Calhoun	25
	Osceola	24
	Dade	23
	Lake	21
	Gilchrist	20
	Lee	20
	St. Lucie	20
	Sumter	20
GEORGIA		
	Echols	100
	Twiggs	100
	Jefferson	40
	Macon	40
	Newton	35
	Rockdale	35
	Walton	35
	Jones	30
	Houston	25
	Lowndes	25
	Morgan	25
	DeKalb	20
	Jasper	20
	Jenkins	20
HAWAII		
	Kohala	32
	Maui	23
ILLINOIS		
	Kendall	30
	Lake	23
	Kankakee	22
IOWA		
	Cerro Gordo	25
	Polk	24
	Dallas	23
	Kossuth	22
	Emmet	21
	Franklin	20
KANSAS		
	Saline	27
	Reno	23
	Comanche	20
	Scott	20
LOUISIANA		
	Rapides	44
	Madison	35
	Richland	23
	Lafayette	21
MAINE		
	Twin	42
	Oxford	30
	York	27
	Penobscot	25
	Somerset	24
	Cumberland	23
	Kennebec	22
	Waldo	22
	Knox-Lincoln	21
MARYLAND		
	Howard	43
	Montgomery	39
	Potomac Valley	37
	Harford	28
	Kent	25
	Cecil	23
	Baltimore	21
	Marva	20
	Frederick	20
MASSACHUSETTS		
	Barnstable	41
	Dukes	40
	Berkshire	31
	Plymouth	27
	Essex	25
	Hampshire	25
	Franklin	22
	Worcester	22
MICHIGAN		
	Ingham	29
	Barry	25
	Jackson	22
	Washtenaw	22
	Lenawee	21
	Berrian	20
	Calhoun	20
	Ogemaw	20
MINNESOTA		
	Dakota	29
	Hennepin	25
	Winona	24
	Goodhue	23
	Washington	23
	Olmsted	22
	McLeod	21
NEBRASKA		
	Lancaster	20
NEVADA		
	Douglas	85
	Churchill	46
	Lyon	39
NEW HAMPSHIRE		
	Sullivan	44
	Belknap	40
	Cheshire	37
	Grafton	31
	Hillsboro	29
	Merrimack	28
	Coos	21
NEW JERSEY		
	Sussex	29
	Burlington	28
	Hunterdon	27
	Salem	27
	Gloucester	26
	Somerset	26
	Warren	24
NEW MEXICO		
	Dona Ana	78
	San Miguel	50
	Sierra	41
	Bernalillo	40
	Valencia	38
	Rio Arriba	25
	Eddy	24
	Curry	23
NEW YORK		
	Dutchess	39
	Ontario	38
	Wayne	38
	Genesee	37
	Columbia	36
	Long Island	33
	Tompkins	29
	Cortland	26
	Onondaga	27
	Orleans	27
	Schuyler	27
	Wyoming	27
	Livingston	26
	Seneca	26
	Monroe	25
	Chemung	24
	Schoharie	24
NEW YORK (con't.)		
	Cayuga	22
	Chautauqua	21
	Chenango	21
	Montgomery	20
	Ulster	20
OHIO		
	Medina	34
	Lorain	32
	Champaign	27
	Clark	24
	Auglaize	23
	Fairfield	23
	Holmes	22
	Marion	22
	Greene	21
	Huron	20
OREGON		
	Washington	33
	Clackamas	23
	Clatsop	23
	Marion	23
	Josephine	21
	Multnomah	21
	Lane	20
PENNSYLVANIA		
	Clinton	39
	Union	35
	Dauphin	34
	Montour	30
	Blair	28
	Montgomery	28
	Bucks	27
	Perry	27
	Cumberland	25
	Centre	25
	Allegheny	23
	Northampton	23
	Mifflin	22
	Chester & Delaware	21
	Lebanon	21
	Schuylkill	21
	Sullivan	21
	Fulton	20
	Lehigh, Carbon & Monroe	20
	Luzerne	20
	Northumberland	20
	Wyoming	20
PUERTO RICO		
	Dorado	63
	Hatillo	43
	Carolina	41
	Cabo Rojo	38
	Coamo	31
RHODE ISLAND		
	Washington	28
	Newport	22
UTAH		
	Wasatch	45
	Davis	34
	Salt Lake	30
	Summit	28
	Utah	25
	Morgan	24
VERMONT		
	Windham	36
	Windsor	34
	Bennington	33
	Rutland	30
	Orange	29
VERMONT (con't.)		
	Addison	27
	Franklin	25
	Chittenden	23
	Lamoille	23
	Washington	23
VIRGINIA		
	Northumberland	48
	Goochland	47
	Louisa	46
	Hanover	42
	Craig	39
	Loudoun	39
	King & Queen	38
	Giles	37
	Culpeper	35
	Essex	34
	Sussex	34
	Halifax	33
	Powhatan	33
	Henrico	32
	James City	31
	Lancaster	31
	Lee	30
	Fairfax	28
	Appomattox	26
	Prince William	26
	Amelia	25
	Princess Anne	25
	Middlesex	24
	Orange	24
	Rockbridge	23
	Fauquier	22
	Isle of Wight	22
	Roanoke	22
	Pulaski	20
	King William	20
WASHINGTON		
	Grant	42
	Grays Harbor	42
	Walla Walla	41
	Franklin	40
	Snohomish	36
	Thurston-Mason	36
	Wahkiakum	36
	Clallam	35
	Jefferson	35
	Skagit Island	33
	Spokane	26
	Pierce	25
	Kittitas	24
	King	23
	Kitsap	22
WISCONSIN		
	Winnebago	35
	Kenosha	30
	Rock	29
	Walworth	28
	Outagamie	27
	Jefferson	26
	Kewaunee	26
	Calumet	25
	Barron	24
	Green	24
	Manitowoc	24
	Sheboygan	23
	Waukesha	23
	Dodge	21
	Fond du Lac	21
	Ozaukee	21
	Washington	21
	Columbia	20
	Door	20
	Oconto	20

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Wis------- J. E. Stallard, Extension Dairyman, Room 207 King Hall, Madison 6.
Wyo------- I. W. Slater, Ext. Division, College of Agr., Laramie.

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA OWNER SAMPLER WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-69
(Vol. 36, No. 3)

Dairy-Herd-Improvement Letter

MARCH 1960

INCREASED NUMBER OF NATION'S DAIRY COWS BEING BRED ARTIFICIALLY

6,932,294 dairy cows, or 32.5 percent of the cows and heifers in the Nation 2 years of age or older kept for milk were bred artificially during 1959. This is 286,726, or 1.7 percent, more cows than were bred artificially in 1958.

Wisconsin continued to lead the States in number of cows bred artificially, with 1,251,901 cows bred in 1959. States in which more than 250,000 cows were bred artificially in 1959 are as follows:

State	Number cows bred artificially	State	Number cows bred artificially
Wisconsin	1,251,901	Iowa	351,170
New York	600,289	California	340,231
Minnesota	589,251	Michigan	313,405
Pennsylvania	531,201	Illinois	260,774
Ohio	375,283		

In fifteen States more than 40 percent of the cows were bred artificially in 1959. They are:

State	Percent	State	Percent
Maine	56.3	Idaho	47.0
Connecticut	56.1	New Hampshire	46.5
Wisconsin	52.1	Ohio	44.3
New Jersey	52.0	New York	43.0
Washington	51.8	Vermont	42.1
Massachusetts	51.7	Minnesota	41.0
Utah	51.0	Rhode Island	40.1
Pennsylvania	50.6		

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On the following pages are data showing the status of the artificial breeding program for the various States.

STATUS OF ARTIFICIAL-BREEDING PROGRAM IN THE UNITED STATES, 1939-60

Year	Studs	Sires in service			Herds	Cows bred		Proved sires in service				
		Total	Proved (per-cent)	Average per stud		Total	Average per sire	Total	Production data			
									Dams		Daughters	
									Milk (pounds)	Fat (pounds)	Milk (pounds)	Fat (pounds)
1939	7	33	-	4.7	646	1/ 7,359	228	-	-	-	-	-
1940	25	138	-	5.5	2,971	1/ 33,977	246	-	-	-	-	-
1941	35	237	-	6.8	5,997	1/ 70,751	299	-	-	-	-	-
1942	46	412	-	9.0	12,118	1/ 112,788	274	-	-	-	-	-
1943	59	574	23.5	9.7	23,448	1/ 182,524	318	135	9,559	387	10,155	419
1944	56	657	19.6	11.7	28,627	1/ 218,070	332	129	9,965	391	10,490	421
1945	67	729	20.2	10.9	43,998	1/ 360,732	495	147	9,629	387	10,488	428
1946	78	900	23.2	11.5	73,293	537,376	597	209	10,270	401	10,741	428
1947	84	1,453	23.1	17.3	140,571	1,184,168	815	335	10,099	405	10,580	430
1948	91	1,745	24.4	19.2	224,493	1,713,581	982	426	10,161	407	10,576	433
1949	90	1,940	26.5	21.6	316,177	2,091,175	1,078	514	10,157	412	10,499	436
1950	97	2,104	26.6	21.7	2/ 409,300	2,619,555	1,245	559	10,236	415	10,734	444
1951	94	2,187	29.0	23.3	2/ 548,300	3,509,573	1,605	634	10,267	419	11,009	459
1952	94	2,324	29.6	24.7	2/ 671,100	4,295,243	1,848	688	10,310	422	11,210	471
1953	96	2,598	36.7	27.1	2/ 755,000	4,845,222	1,865	953	10,375	429	11,176	473
1954	93	2,661	36.1	28.6	2/ 805,000	5,155,240	1,937	960	10,483	432	11,239	475
1955	79	2,450	36.0	31.0	2/ 845,900	5,413,874	2,210	883	10,575	436	11,265	476
1956	79	2,553	36.5	32.3	2/ 900,400	5,762,656	2,257	932	10,600	438	11,301	477
1957	75	2,651	40.5	35.3	2/ 946,000	6,055,982	2,284	1,074	10,626	440	11,304	477
1958	71	2,676	37.8	37.7	2/ 975,372	6,645,568	2,483	1,012	10,772	446	11,345	478
1959	64	2,460	39.1	38.4	2/ 930,059	6,932,294	2,816	963	10,918	451	11,493	482
1960	62	2,544	-	41.0	-	-	-	-	-	-	-	-

1/ Prior to 1946 cows were reported only on the basis of enrollment.
2/ Estimated.

STATUS OF ARTIFICIAL-BREEDING PROGRAM
(January 1, 1960)

State	Studs	Herds 1/	Cows bred in State during 1959		Milk cows in United States 2/	
			Registered	Total	Total	Bred artificially
	Number	Number	Number	Number	Thousands	Percent
Alabama 3/-------	0	7,756	3,708	38,003	368	10.3
Alaska-----------	1	100	50	1,170	-	-
Arizona----------	1	450	1,727	14,811	55	26.9
Arkansas---------	1	4,405	2,805	26,432	328	8.1
California-------	5	18,097	29,927	340,231	983	34.6
Colorada---------	1	2,986	2,602	27,774	144	19.3
Connecticut------	1	3,233	8,477	57,218	102	56.1
Delaware 3/------	0	973	2,640	11,092	33	33.6
Florida 3/-------	0	4,720	6,375	86,578	243	35.6
Georgia 3/-------	0	7,792	4,171	38,958	307	12.7
Hawaii-----------	1	175	181	4,582	-	-
Idaho 3/ 4/------	0	13,368	7,437	113,629	242	47.0
Illinois---------	3	46,567	35,646	260,774	736	35.4
Indiana----------	1	33,900	19,162	162,719	526	31.0
Iowa-------------	2	60,547	20,649	351,170	993	35.4
Kansas-----------	1	16,195	8,952	89,075	423	21.1
Kentucky---------	1	33,893	1,587	115,238	615	18.7
Louisiana--------	1	7,882	5,403	52,812	321	16.5
Maine------------	1	7,076	794	58,020	103	56.3
Maryland---------	1	11,200	9,810	78,402	248	31.6
Massachusetts 3/-	0	3,857	6,547	51,681	100	51.7
Michigan---------	1	69,646	30,038	313,405	812	38.6
Minnesota--------	2	84,179	27,348	589,251	1,436	41.0
Mississippi------	2	6,423	4,901	36,610	503	7.3
Missouri---------	1	40,462	12,982	153,756	803	19.1
Montana 3/-------	0	1,388	1,065	13,043	92	14.2
Nebraska---------	1	17,159	5,571	68,634	386	17.8
Nevada 3/--------	0	236	456	3,427	19	18.0
New Hampshire----	1	3,411	7,019	26,946	58	46.5
New Jersey-------	2	5,064	9,592	76,972	148	52.0
New Mexico 3/----	0	1,294	1,289	14,493	55	26.4
New York---------	1	58,852	87,987	600,289	1,395	43.0
North Carolina---	1	9,330	8,933	80,234	382	21.0
North Dakota 3/--	0	8,564	487	23,979	341	7.0
Ohio-------------	2	67,015	53,786	375,283	848	44.3
Oklahoma 3/------	0	1,833	1,743	12,828	366	3.5
Oregon-----------	1	15,221	8,656	85,236	221	38.6
Pennsylvania-----	7	64,781	98,239	531,201	1,049	50.6
Puerto Rico------	1	992	100	14,901	-	-
Rhode Island 3/--	0	1,017	736	6,408	16	40.1
South Carolina---	1	5,683	1,140	25,573	161	15.9
South Dakota-----	1	7,206	1,458	25,222	303	8.3
Tennessee--------	3	19,366	3,306	104,578	622	16.8
Texas------------	1	4,361	2,570	61,484	713	8.6
Utah-------------	1	7,790	3,166	59,202	116	51.0
Vermont 3/-------	0	9,087	13,673	119,954	285	42.1
Virginia---------	1	12,186	13,994	93,833	417	22.5
Washington-------	1	24,001	11,506	151,209	292	51.8
West Virginia 3/-	0	7,611	7,962	27,401	180	15.2
Wisconsin--------	8	90,065	88,170	1,251,901	2,402	52.1
Wyoming 3/-------	0	664	267	4,672	40	11.7
United States----	62	930,059	686,790	6,932,294	21,331	32.5

1/ Estimated.

2/ Agricultural Marketing Service estimate of number of cows and heifers 2 years old and over kept for milk.

3/ Buys semen from studs in other states.

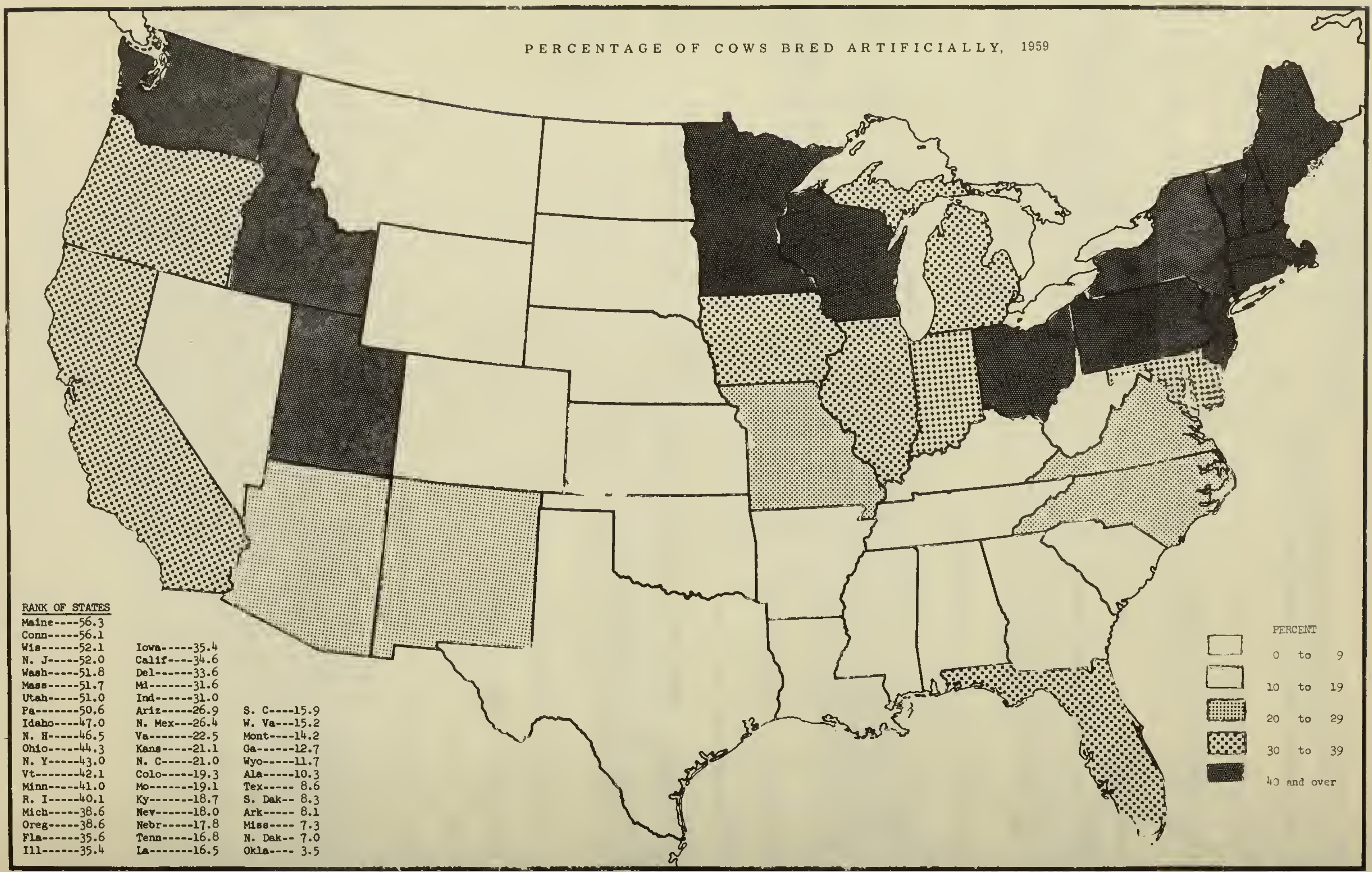
4/ Stud discontinued.

ARTIFICIAL-BREEDING ORGANIZATION BULL STUDS, JANUARY 1, 1960

State, Name, and Location of Studs	Number and breed of bulls used									Total cows bred 1959
	Ayrshire	Brown Swiss	Guernsey	Holstein	Jersey	Red Dane	Shorthorn	Beef	Total	
ALASKA										
Matanuska Valley Breeders Association, Palmer	-	-	-	5	-	4	-	-	9	1,170
ARIZONA										
Eads Cattle ABA, 3030 E. Thomas Road, Phoenix	-	-	-	3	-	-	-	-	3	306
ARKANSAS										
Arkansas ABA, Box 693, Fayetteville	-	-	6	6	6	-	3	-	21	12,164
CALIFORNIA										
Adohr Dairy Farms, Route 1, Box 118, Camarillo	-	-	14	14	-	-	-	-	28	7,413
California Dairy Breeders, Inc., P.O. Box 188, Davis	-	-	8	11	7	-	-	5	31	45,590
Excelsior AIS, 10531 E. Westminster Ave., Corona	-	-	2	12	-	-	-	-	14	17,037
Pacific Dairy Breeders Co-op., Petaluma	-	-	6	10	6	-	-	1	23	20,032
Roger Jessup Farms, 11638 E. Artesia Blvd., Artesia	-	-	7	15	5	-	-	1	28	65,637
Total	-	-	37	62	18	-	-	7	124	155,709
COLORADO										
Colorado A & M ABS, 805 S. Shields Street, Ft. Collins	-	1	2	4	1	-	2	8	18	10,966
CONNECTICUT										
New England Selective Breeding Assn., Inc., Woodbridge	5	2	10	14	10	-	-	-	41	125,190
HAWAII										
Haleakala Dairy Farm	-	-	-	3	-	-	-	-	3	405
IDAHO										
Bluffview AIS, New Plymouth (discontinued)	-	4	6	10	6	-	4	2	32	19,942
ILLINOIS										
Curtiss Candy Farms Improved Stud Service, Inc., Cary	6	12	28	66	16	-	8	35	171	633,998
Northern Illinois Breeding Co-op., Route 1, Hampshire	-	9	11	30	-	-	4	-	54	108,455
Southern Illinois Breeding Association, Breese	-	3	7	14	7	-	4	8	43	70,820
Total	6	24	46	110	23	-	16	43	268	813,273
INDIANA										
John A. Newman & Sons, Route 2, Culver	-	-	1	7	-	-	-	-	8	1,495
IOWA										
Eastern Iowa ABA, Box 1751, Cedar Rapids	3	7	13	19	5	-	4	19	70	185,892
Iowa Breeders Co-op., Cornell & Hoffman Rd., Des Moines 13	-	4	8	12	3	-	6	-	33	100,873
Total	3	11	21	31	8	-	10	19	103	286,765
KANSAS										
Kansas ABS Unit, Kansas State College, Manhattan	7	6	9	15	6	-	7	-	50	49,824
KENTUCKY										
Kentucky ABA Inc., 640 Herr Lane, Louisville 7	-	5	8	7	6	-	-	7	33	101,634
LOUISIANA										
Louisiana ABA Inc., Box 8907 La. State Univ., Baton Rouge 3	-	-	7	9	11	-	-	4	31	51,111
MAINE										
Maine Breeding Cooperative, Route 1, Augusta	-	1	11	14	10	-	7	1	44	53,698
MARYLAND										
Maryland ABC Inc., College Park	4	4	11	15	9	-	-	-	43	94,389
MICHIGAN										
Michigan ABC Inc., Box 511, Michigan State College, E. Lansing	4	6	16	36	12	4	6	17	101	237,962
MINNESOTA										
Consolidated Breeders Cooperative, Inc., Anoka	-	7	13	25	6	-	6	11	68	208,223
Minnesota Valley Breeders Association, New Prague	3	4	9	26	5	-	5	10	62	309,070
Northwest Breeders Association, Rosseau (discontinued)	-	2	3	7	-	-	3	2	17	13,138
Total	3	13	25	58	11	-	14	23	147	530,431
MISSISSIPPI										
Mississippi ABC, Box 354, State College	-	-	4	4	9	-	-	-	17	20,843
Tupelo Area AIA, Box 366, Tupelo	-	-	-	-	8	-	-	-	8	12,955
Total	-	-	4	4	17	-	-	-	25	33,798
MISSOURI										
M.F.A. Dairy Breeders, P. O. Box 591, Springfield	-	3	12	13	13	-	4	10	55	84,062

State, Name, and Location of Studs	Number and breed of bulls used									Total cows bred 1959
	Ayrshire	Brown Swiss	Guernsey	Holstein	Jersey	Red Dane	Shorthorn	Beef	Total	
NEBRASKA										
Nebraska Dairy Breeders Association, Fremont	-	6	5	14	4	-	7	11	47	43,400
NEW HAMPSHIRE										
New Hampshire-Vermont Breeding Association, Box 350, Concord	1	-	8	13	13	-	-	2	37	58 678
NEW JERSEY										
New Jersey Cooperative Breeders Association, Inc., Annandale	-	4	10	19	3	-	-	4	40	40,417
Sussex County Cooperative Breeding Association, Sussex	-	-	6	18	-	-	-	-	24	13,728
Total	-	4	16	37	3	-	-	4	64	54,145
NEW YORK										
New York ABC, Inc., Rt. 2, Box 528, Ithaca	12	12	17	55	12	-	-	10	118	496,329
NORTH CAROLINA										
N. C. Institutional Breeding Program, Raleigh	-	-	-	11	-	-	-	-	11	1,050
OHIO										
Central Ohio Breeding Assn., 1224 Alton-Darby Rd., Columbus 4	5	7	21	25	13	-	2	3	76	233,765
Northern Ohio BCA, Route 4, Tiffin	-	-	17	23	18	-	-	17	75	195,225
Total	5	7	38	48	31	-	2	20	151	428,990
OREGON										
Oregon Dairy Breeders Association, Box 48, Corvallis	-	-	10	10	13	-	-	10	43	53,913
PENNSYLVANIA										
First Pennsylvania Artificial Breeding Cooperative, Lewisburg	-	-	12	14	-	-	-	9	35	54,294
Golden Genes, Inc., Dimock	-	-	-	2	-	-	-	-	2	500
Lehigh Valley Farmers Assn.,1000-1160 N. 7th St., Allentown	4	2	7	15	4	-	-	3	35	33,097
NEPA Artificial Breeding Co-op., P. O. Box 26, Tunkhannock	6	-	14	17	9	-	-	-	46	101,961
Southeastern Pennsylvania ABC, Box 254, Lancaster	5	-	10	13	3	-	-	4	35	136,142
Western Pennsylvania ABC, Box 550, Clarion	3	4	9	14	7	-	-	-	37	137,772
Zimmerman Dairy Farm, Lehighton	-	-	-	6	-	-	-	-	6	1,450
Total	18	6	52	81	23	-	-	16	196	465,216
PUERTO RICO										
Puerto Rico Artificial Breeding Assn., Box 61, Bayamon	-	8	-	15	-	-	-	-	23	14,802
SOUTH CAROLINA										
Chester Cooperative Breeding Assn., Chester	-	-	6	-	-	-	-	-	6	2,180
SOUTH DAKOTA										
South Dakota Cooperative Breeders Assn., P. O. Box 244, Brookings	1	5	3	8	-	-	3	7	27	10,263
TENNESSEE										
East Tennessee ABA, Route 14, Knoxville	-	-	6	7	5	-	-	-	18	37,865
Tennessee Artificial Breeding Association, Brentwood	-	4	6	6	10	-	-	5	31	38,965
West Tennessee Artificial Breeding Association, Yorkville	-	-	-	7	9	-	-	5	21	11,777
Total	-	4	12	20	24	-	-	10	70	88,607
TEXAS										
Texas A & M College, Dairy Science Dept., College Station	-	-	-	5	3	-	-	4	12	550
UTAH										
Cache Valley Breeding Association, Logan	3	2	5	15	5	-	2	-	32	84,533
VIRGINIA										
Virginia ABA, Inc., Route 4, Rocky Mount	-	-	7	12	4	-	-	7	30	62,960
WASHINGTON										
Evergreen Northwest Breeders, Inc., Box 197, Burlington	3	2	9	13	8	-	3	7	45	124,941
WISCONSIN										
American Breeders Service, Madison	5	11	31	91	23	-	9	25	195	1,316,673
Associated Breeding Service, Inc., Lena	-	-	4	9	-	-	-	3	16	22,888
Badger Breeders Cooperative, Shawano	-	7	19	27	6	-	-	3	62	373,576
Clinton Stock Farm Breeding Service, Inc., Barron	-	-	2	7	1	-	-	-	10	4,667
E. Central Breeders Assn. Co-op., 314 Beaver Dam St., Waupun	-	4	3	20	-	-	-	6	33	79,736
Piper Bros. Farms, Watertown	-	-	6	28	2	-	-	8	44	92,060
Southern Wisconsin Breeders Co-op., Route 2, Madison 5	-	-	5	33	-	-	-	-	38	113,653
Tri-State Breeders Cooperative, Westby	-	7	27	19	6	-	8	8	75	274 190
Total	5	29	97	234	38	-	17	53	473	2,277,443
UNITED STATES	80	165	517	1,017	348	8	107	302	2,544	6,932,294

PERCENTAGE OF COWS BRED ARTIFICIALLY, 1959



RANK OF STATES

Maine	56.3
Conn	56.1
Wis	52.1
N. J	52.0
Wash	51.8
Mass	51.7
Utah	51.0
Pa	50.6
Idaho	47.0
N. H	46.5
Ohio	44.3
N. Y	43.0
Vt	42.1
Minn	41.0
R. I	40.1
Mich	38.6
Oreg	38.6
Fla	35.6
Ill	35.4
Iowa	35.4
Calif	34.6
Del	33.6
Md	31.6
Ind	31.0
Ariz	26.9
N. Mex	26.4
Va	22.5
Kans	21.1
N. C	21.0
Colo	19.3
Mo	19.1
Ky	18.7
Nev	18.0
Nebr	17.8
Tenn	16.8
La	16.5
S. C	15.9
W. Va	15.2
Mont	14.2
Ga	12.7
Wyo	11.7
Ala	10.3
Tex	8.6
S. Dak	8.3
Ark	8.1
Miss	7.3
N. Dak	7.0
Okla	3.5

U. S. DEPARTMENT OF AGRICULTURE

OFFICIALS IN CHARGE OF DAIRY BREEDING ORGANIZATIONS IN THE STATES

Ala------R. Sam Jones, Jr., Extension Service, School of Agr., Auburn.
Alaska---Wm. J. Sweetman, Dairy Husbandman, Alaska Exp. Station, Palmer.
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Ark------Glen R. Pursley, Extension Service, College of Agr., Fayetteville.
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Fla------C. W. Reaves, Extension Service, College of Agr., Gainesville.
Ga-------W. H. McKinney, Extension Service, College of Agr., Athens.
Hawaii---H. M. Vollrath, Spec. in An. Husb., Univ. of Hawaii, P. O. Box 18, Honolulu 10.
Idaho----G. C. Anderson, Ext. Division, College of Agr., Boise.
Ill------J. G. Cash, Extension Service, College of Agr., Urbana.
Ind------S. M. Gregory, Ext. Dairyman, Dept. of Agr. Ext., Purdue University, Lafayette.
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Kans-----Ralph Bonewitz, Est. Division, Kansas University, Manhattan.
Ky-------Edward Troutman, Ext. Service, College of Agr., Lexington 29.
La-------E. W. Neasham, Agr. Ext. Service, University Station, Baton Rouge 3.
Maine----Norman R. Ness, Ext. Service, College of Agr., Orono.
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Mass-----C. H. Parsons, Ext. Service, University of Mass., Amherst.
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Wis------Geo. M. Werner, Ext. Dairyman, Room 209 King Hall, College of Agr.,Madison 6.
Wyo------I. W. Slater, Ext. Division, College of Agr., Laramie.

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA OWNER SAMPLER WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter
ARS-44-70
(Vol. 36, No. 4)

April 1960

PROGRESS REPORT ON AUTOMATION OF DHIA SIRE-PROVING PROCEDURES

The operation of converting sire-proving procedures from a manual punch-card system to 705-III electronic data-processing procedures is progressing. Many facts of general interest are being revealed.

The original punch-card file consisted of more than 6,000,000 lactation records. A preliminary "screening" of the punch cards reduced the number of lactation records to be placed on magnetic tape to 5,995,703. The 5,995,703 records, after being placed on tape, were given a special edit "run" on the 705-III to check for completeness and accuracy. Cows with several records with inconsistencies in identification numbers of sire and/or dam, birth date, freshening dates, and duplicate production records reported, were "pulled" from the Master Tape Cow File for correction and reconciliation. Records of cows with major inconsistencies and duplicate records were dropped from the file.

RESULTS OF THE FIRST EDIT "RUN" OF THE MASTER FILE

1. Number of records pulled from master file because of inconsistencies and listed for correction and/or reconciliation------------490,000
   (It is estimated at least 90 percent of these records can be corrected and re-entered in the Master File)

2. Number of records dropped (estimated):

   (a) Records with inconsistencies impractical to attempt to correct. (Mostly records of early eartagged animals)-------------300,000

   (b) Duplicate records. Records reported more than once--DHIA records and Herd Test records-----------------------300,000

Total records pulled from Master File----------------------1,090,000

Total records "passing" first edit tests
and now in Master Tape File--------------------------------4,905,703

Total records in original tape file------------------------5,995,703

RECORDS IN MASTER COW FILE BY BREED

Breed	Number cows	Number records	Average number records per cow
Ayrshire	85,850	208,549	2.4
Brown Swiss	53,332	130,630	2.4
Guernsey	279,469	637,408	2.3
Jersey	204,678	487,709	2.4
Holstein	717,045	1,758,429	2.5
M. Shorthorn	21,116	43,089	2.0
Red Poll	1,127	2,437	2.2
Red Dane	1	2	2.0
Total:			
Registered	1,362,618	3,268,253	2.4
Grade	894,523	1,637,450	1.8
Grand Total	2,257,141	4,905,703	2.2

Note: There are 2,257,141 cows represented in the Master Cow File with a total of 4,905,703 records, or an average of 2.2 records per cow.

RECORDS OF MASTER SIRE FILE BY BREED

Breed	Registered and Grade	Registered			
	Number cows represented	Number sires represented	Sires with 5 or more daughters	Sires eligible to be re-tabulated	Sires with 5 or more daughters without dams reported
Ayrshire	92,439	14,492	1,600	1,856	38
Brown Swiss	58,538	11,547	1,265	1,150	52
Guernsey	353,398	51,791	7,448	7,051	424
Holstein	980,537	123,513	15,842	14,521	1,161
Jersey	248,294	37,568	4,660	5,411	222
M. Shorthorn	22,913	6,125	997	374	45
Red Dane	2,591	104	59	2	1
Red Poll	1,157	349	37	17	1
Total	1,759,867	245,489	31,908	30,382	1,944

1,759,867 cows Registered and Grade are represented in the Sire File. 497,274 (2,257,141 less 1,759,867) cows in the Master Cow File did not have a Registered sire. These cows were reported without sires. Records of cows with Grade sires were not included in the conversion operation because of inconsistencies and almost complete lack of uniformity in identifying grade sires. These records are being prepared by a clerical staff to be included in a later operational run.

As noted in the table on page 2, 245,489 Registered sires are represented in the Master Sire File, 31,908 of the sires that have been proved have five or more daughters with production records reported. Many of these sires will be proved for the first time. Records of those that cannot be proved (records for dams of the daughters not reported) will be summarized on a daughter-average basis.

30,382 sires that have been previously proved now have sufficient additional daughters (50 percent more than when proved), to warrant re-proving the sires. Many of these sires will be re-proved--the number depending on the number of additional daughters reported that also have dams with production records reported. Records of those sires that cannot be re-proved will be summarized on a daughter-average basis. When the automated sire-proving procedures are in operation, all proved-sire tabulations will be brought up-to-date.

It should be noted also that there are 1,944 sires that have five or more daughters with no dams reported. Daughter-average summaries will be compiled for these sires.

Because of limited 705-III machine time available for processing dairy records, conversion operations have been delayed somewhat. It is expected that sufficient machine time will be available to complete the conversion and produce proved-sire records within the next 2 or 3 weeks.

IMPORTANCE OF COMPLETE AND ACCURATE REPORTING OF DHIA LACTATION RECORDS

With the 705-III procedures, DHIA lactation records are thoroughly edited with the result that the Master File will contain perhaps the most accurate records ever assembled for proving sires.

Current records being added to the Master File must be free of inconsistencies with records previously reported or ALL records involved will be "pulled" from the Master File for examination. Current records, therefore, must be complete and accurate or they cannot be placed in the Master File.

Based on the discrepancies observed in the records "pulled" from the Master File, supervisors must give increased attention to the reporting of:

1. Identification number of cow, sire and dam--Registered and Grade. For Registered animals, registration papers must be checked to see that the correct identifications are recorded in the owner's DHIA Herd Record Book. For eartagged animals the correct eartag identification number must also be recorded in the owner's DHIA Herd Record Book.

   Identification numbers in the owner's DHIA Herd Record Book, which have been checked for accuracy by the supervisor and by the owner must be referred to in reporting 718's and in setting up identification records in EDPM systems where records are processed in a DHIA computing center.

2. Birthdates and freshening dates. They should be re-checked in the DHIA Herd Record Book by the supervisor and by the owner.

3. Production data. All data reported should be checked with data in the owner's DHIA Herd Record Book. The watchword for supervisors and owners must be COMPLETENESS and ACCURACY in all reports.

PRODUCTION RECORDS REPORTED TO THE DAIRY HERD IMPROVEMENT SECTION BY STATE EXTENSION SERVICES, FOR THE PERMANENT FILES DURING 1959 and 1960

State	First 3 Months of 1960										1959	
	Cows on test in all association herds on January 1	Production records reported 1/ 2/	Herd Test Records Reported by -- American Dairy Cattle Club	Ayrshire Breeders Association	Brown Swiss Cattle Breeders' Association	American Guernsey Cattle Club	American Jersey Cattle Club	Total records reported 3/		Records Returned	Production records reported 2/	
	Number	Number	Number	Number	Number	Number	Number	Number	Percent	Number	Number	Percent
Maine	20,980	3,238	-	-	-	58	-	3,296	15.7	139	14,438	74.9
N. H	11,742	767	-	-	-	72	-	839	7.1	46	6,807	62.4
Vt	45,462	3,053	-	-	27	76	-	3,156	6.9	201	26,859	60.3
Mass	22,100	161	9	-	92	176	-	438	2.0	46	18,630	88.3
R. I	2,764	56	-	-	-	14	-	70	2.5	16	1,455	52.1
Conn	22,035	908	-	-	80	301	-	1,289	5.8	43	16,341	74.5
N. Y	151,049	-	45	-	119	506	-	670	0.4	9,825	179,978	126.4
Pa	139,606	-	-	-	43	43	-	86	0.1	226	151,683	125.2
N. J	27,516	1,951	-	-	42	282	-	2,275	8.3	89	13,308	51.9
Md	44,181	1,254	-	-	25	299	-	1,578	3.6	91	37,153	91.2
Del	3,595	-	-	-	-	34	-	34	0.9	15	3,592	105.1
Va	50,961	10,401	-	-	32	343	-	10,776	21.1	420	43,757	78.7
W. Va	8,736	480	-	-	12	6	-	498	5.7	23	5,840	74.5
Ky	17,348	590	-	-	22	63	-	675	3.9	48	4,407	34.0
N. C	32,084	3,688	-	-	-	261	-	3,949	12.3	59	17,022	65.7
S. C	10,557	876	-	-	22	183	-	1,081	10.2	36	3,800	45.1
Ga	19,715	1,223	-	-	4	84	-	1,311	6.6	49	4,693	30.9
Fla	21,620	1,121	-	-	-	283	-	1,404	6.5	34	5,594	26.7
Ala	17,803	1,454	-	-	-	22	-	1,476	8.3	15	6,330	40.6
Miss	7,678	552	-	-	1	107	-	660	8.6	5	1,911	30.7
Tenn	16,283	50	-	-	-	119	-	169	1.0	-	3,067	23.6
La	3,966	285	-	-	-	55	-	340	8.6	1	865	25.3
Ark	1,918	52	-	-	-	22	-	74	3.9	4	409	38.5
Ohio	60,137	8,386	12	-	296	511	-	9,205	15.3	314	28,618	51.2
Ind	35,789	2,126	17	-	60	247	-	2,450	6.8	45	12,958	36.9
Ill	58,272	6,398	-	-	168	246	-	6,812	11.7	81	35,832	64.2
Mich	60,851	20,334	-	-	127	236	-	20,697	34.0	432	57,958	105.6
Wis	98,986	-	-	-	161	58	-	219	0.2	76	38,903	41.1
Minn	107,188	11,418	-	-	51	122	-	11,591	10.8	1,188	56,827	58.2
Iowa	54,454	7,643	-	-	232	92	-	7,967	14.6	292	33,620	68.2
Mo	21,714	2,257	-	-	27	48	-	2,332	10.7	80	8,697	40.6
N. Dak	5,403	405	-	-	9	5	-	419	7.8	29	2,606	60.2
S. Dak	5,883	145	-	-	30	15	-	190	3.2	7	1,123	19.8
Nebr	13,240	489	-	-	12	77	-	578	4.4	35	2,132	18.2
Kans	26,110	1,959	-	-	18	49	-	2,026	7.8	81	12,599	51.4
Okla	7,348	1,373	-	-	11	78	-	1,462	19.9	69	1,508	21.9
Tex	21,866	926	-	-	24	91	-	1,041	4.8	33	6,002	35.6
Mont	5,559	360	-	-	33	12	-	405	7.3	3	1,141	21.5
Idaho	25,441	1,755	-	-	6	73	-	1,834	7.2	31	7,338	32.6
Wyo	1,441	90	-	-	-	2	-	92	6.4	4	475	29.2
Nev	3,061	6	-	-	-	-	-	6	0.2	-	256	13.0
Utah	16,266	2,228	-	-	-	37	-	2,265	13.9	69	11,266	79.5
Colo	15,514	567	-	-	40	25	-	632	4.1	46	2,257	16.6
N. Mex	4,055	109	-	-	-	71	-	180	4.4	6	1,008	33.0
Ariz	25,951	565	-	-	-	14	-	579	2.2	5	2,166	9.2
Wash	43,626	12,861	-	-	2	234	-	13,097	30.0	1,326	16,133	35.0
Oreg	28,737	3,754	-	-	8	83	-	3,845	13.4	70	15,501	58.7
Calif	295,536	287	-	-	19	140	-	446	0.2	2	2,957	1.1
P. R	4,422	251	-	-	-	-	-	251	5.7	19	87	1.8
Hawaii	203	9	-	-	-	-	-	9	4.4	-	91	42.1
Alaska	0	-	-	-	-	-	-	-	-	-	-	-
U. S	1,746,752	118,861	83	-	1,855	5,975	-	126,774	7.3	15,774	927,998	57.7

1/ Includes cows enrolled since January 1, 1960.
2/ Production records reported on DHIA-718 and DHIA-1095.
3/ Records returned to States because of inconsistent or incomplete data.

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
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OWNER SAMPLER
WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter
ARS-44-77
(Vol. 36, No. 5)

May 1960

NEW DHIA PROVED-SIRE RECORD

Automation is now being used to compile for U. S. dairy farmers the most complete and reliable proved-sire records possible. The new proved-sire records include summary data on parentally unrelated stallmates or contemporaries of daughters, as well as yearly herd average data for the approximate period of each daughters' lactation record. When available, information on the amount of feed that is fed the dams and daughters is also included.

The proved-sire records when compiled include all the usable dam-and-daughter production data ever reported. In other words, as of the date the record is tabulated it is complete and up-to-date.

On the following page is a sample of the new proved-sire record using assimilated data. These new proved-sire records will soon be produced in volume as every DHIA sire that can be proved or re-proved will be proved or re-proved on an up-to-date basis.

Errata: In January 1960 letter on page 2 delete footnote 3.

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DHIA PROVED SIRE RECORD FOR HOLSTEIN
BREED

U. S. DEPT. OF AGRICULTURE - AGRICULTURAL RESEARCH SERVICE
DAIRY CATTLE RESEARCH BRANCH - DAIRY HERD IMPROVEMENT SECTION

999999 SAMPLE PROVED SIRE RECORD
SIRE NUMBER NAME

RECORDS FROM STATES [2] 32-015 33-010 35-005

BORN. 6-15-49 SIRE. 888888 DAM. 777777

AB SERVICE [1] 35-05 TABULATED 12-15-57 PREVIOUS TABULATION.

SUMMARY [3]	RECORDS OF DAMS OF DAUGHTERS AND DAUGHTERS OF SIRE											FEEDING INDEX [8]	305 - DAY CONTEMPORARY HERD AVERAGE [9]			YEARLY HERD AVERAGE [10]		
	IDENTIFICATION NUMBER	AB [4]	BREED [5]	TYPE [6]	DATE OF BIRTH	DAYS IN MILK NUMBER	RECORDS AVERAGED NUMBER	MILK AVERAGE POUNDS	FAT PERCENT	FAT AVERAGE POUNDS	CAR [7]		RECORDS NUMBER	MILK POUNDS	FAT POUNDS	RECORDS NUMBER	MILK POUNDS	FAT POUNDS
14 NON-AB	DAU -----	-	-	85	---------	--	25	13902	3.8	522		97	25	13667	492	39	13889	500
13 NON-AB	DAU -----	-	-	85	---------	--	23	13864	3.8	527		96	25	13667	492	40	13861	499
13	DAMS ----	-	-	84	---------	--	36	13765	3.8	522		95	DIFF.	ALL	DAU &	HERD	DATA	
DIFF 12-08-12	-----	-	-	1	---------	--		99	.0	5		1		235	30		13	22
18 AB DAU	---------	-	-	85	---------	--	23	14025	3.6	509		98	24	14056	506	38	14306	515
17 AB DAU	---------	-	-	85	---------	--	21	14033	3.6	510		99	24	14056	506	41	14333	516
17 DAMS	---------	-	-	83	---------	--	31	13288	3.7	487		97	DIFF.	ALL	DAU &	HERD	DATA	
DIFF 11-10-12	-----	-	-	2	---------	--		745	.1-	23		2		31-	3		281-	6-
32 ALL DAU	--------	-	-	85	---------	--	48	13964	3.7	516		98	25	13861	499	37	14167	510
30 ALL DAU	--------	-	-	85	---------	--	44	13960	3.7	517		97	24	13889	500	40	14278	514
30 ALL DAMS	-------	-	-	84	---------	--	67	13495	3.7	502		96	DIFF.	ALL	DAU &	HERD	DATA	
DIFF 23-18-24	-----	-	-	1	---------	--		465	.0	15		1		103	17		203-	6
HERD CODE																		
32500591	1855980	-	3	84	10-10-35	305	3	15806	3.3	527								
32500591	3284006	A	3	82	10-10-50	305	1	15977	3.7	599			32	15528	559	35	15667	564
32430860	2497395	-	3	80	7-31-44	302	3	16986	3.7	623								
32500591	3272791	-	3	90	11-30-49	305	2	15870	4.1	646			36	15667	564	36	16167	582
32430860	2497395	-	3	80	7-31-44	302	3	16986	3.7	623								
32500533	3349862	A	3	81	11-28-50	305	2	18543	4.0	737			32	13528	487	41	15833	570
32430860	2425344	-	3	86	12-18-41	291	6	12169	3.7	452								
35640927	35AAB4269	-	3	90	7-24-50	301	2	14275	3.8	527			26	13654	483	39	14286	522
33260865	2497390	-	3	80	6-30-44	302	2	16869	3.7	632								
32500533	3546972	A	3	85	11-28-50	305	1	18549	4.0	736			32	13528	487	41	15833	570
33260867	2395055	-	3	87	11-30-41	301	6	11674	3.6	417								
33500534	3152765	A	3	90	8-29-48	305	1	9073	3.3	296			25	13345	465	45	14542	475
35170985	2472904	-	3	87	11-29-43	295	7	12760	3.7	467								
33160113	2923941	-	3	83	11-03-47	305	1	11421	3.7	426			23	14167	493	35	14345	432
33180742	2472904	-	3	87	11-29-43	295	5	12760	3.7	467								
35110643	2923342	-	3	85	11-03-47	305	5	13519	3.8	513			27	14474	505	37	15142	512

NEW PROVED SIRE RECORD FORM for the sire 999999 gives the following information:

At the top of the form is the breed, registration number, name of sire, birth date, sire, and dam. The sire is in AB service (35-05) -- the "35" indicates Wisconsin and "5" is the stud number. Each State has a code number and each stud in the State is coded.

After "records from States" are listed the State from which data included in the sire record were received and the number of records from each State. For example, "32-015" indicates that 15 records included in the sire record were from Indiana.

In the top portion of the body of the form are summaries of the dam-and-daughter data of the sire.

The first summary is of non-AB daughters or a "natural proof." The sire had 14 non-AB daughters, 13 of which had dams with reported production records. The data "Diff. 12-08-12" indicates that 12 of the daughters excelled their dams in milk production, 8 excelled their dams in butterfat test, and 12 excelled their dams in butterfat production.

Type score ... The score "85" is the average type score of those daughters that have been officially classified; "84" is the average score of the dams.

Number of records averaged ... The 14 daughters, collectively, had 25 lactation records which were first averaged for each daughter to obtain the average production of all daughters. The 13 daughters with dams averaged 13,864 pounds of milk, testing 3.8 per cent butterfat, and 527 pounds of butterfat. Compared to the production of their dams, they excelled in milk production by 99 pounds and butterfat by 5 pounds.

When feed data are reported, a feeding index is calculated in an attempt to estimate the feed input to the daughters of the sire and to their dams. Amount of feed fed and feed requirements have been calculated on a net energy basis.

To obtain the index, estimated net energy fed has been divided by the total estimated requirement for maintenance and production.

Theoretically, a feeding index of less than 100 indicates the animals, as a group, were fed below requirements.

The average feed index for the daughters, as a group, and for dams, as a group, may be useful in indicating if feeding levels for the dams and daughters were comparable.

305-day contemporary herd average ... Data under this heading consist of the average production level of the paternally unrelated stablemates of the daughters that completed production records at the same time as the daughters.

The contemporary averages provide some indication of the average producing ability of the stablemates and the environmental conditions of the herd during the approximate period the lactation records of the daughters listed were made. In the above example they excelled their stablemates by 235 pounds of milk and 30 pounds of butterfat.

Yearly herd average ... Data under this heading indicate, on a cow-year basis, the yearly average production of the entire herd. These data may be used with the "contemporary average data" in appraising the environment of a herd.

For a few years, in some cases where uniform herd codes are not available to identify earlier lactation records by herds, yearly average may be the only herd data which can be included in a sire record.

As with the "contemporary average" the "yearly average" provides some indication of the producing ability of the herd, as a whole, and the environmental conditions of the herd during the approximate period the records of the daughters listed were made.

The yearly herd average is increased by 9 per cent that it may be more comparable to the standardized (mature equivalent) average data of the daughter data included in the record. In the example on page 2 the daughters of the sire excelled the adjusted herd average by 13 pounds of milk and 22 pounds of butterfat.

The explanation of the second summary of 18 AB daughters is the same as for the non-AB daughters. This summary includes only the records of daughters that are AB progeny.

In the lower part of the form, the individual dam-and-daughter comparisons are listed. The comparisons are listed by pairs. The data on the first line are for the dam of the daughter; the data on the second line are for the daughter.

In the first column is listed the herd code of the herd from which the lactation records were reported. The identification number of the dams and daughters is listed in the second column. If the dam or daughter is an AB progeny, it is indicated by an "A" in the third column.

The remainder of the data is explained by the column headings at the top of the form, with the exception of the column headed "CAR." This refers to conditions affecting record. If a production record is affected by the cow being injured, having mastitis, and so forth, a code indicating the conditions would be listed.

Individual dam-and-daughter comparisons up to 21 pairs will be listed in the proved sire record. After 21 comparisons have been listed for a sire, when the sire is reproved, only the summary data at the top of the form are printed.

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA OWNER SAMPLER WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter
ARS-44-78
(Vol. 36, No. 6)

June 1960

REVISED STANDARD DHIA RULES

At the annual American Dairy Science Association meeting, held at the University of Utah in June, the Standard DHIA Rules were revised and clarified. The rules as approved are as follows:

1. STANDARD TESTING EQUIPMENT AND METHODS

Testing equipment and methods shall conform to the standards and methods set by the American Dairy Science Association. The accuracy of all testing and weighing equipment shall be checked as frequently as necessary to insure that equipment is operating according to manufacturer's specification.

2. COOPERATION OF OWNER

Owners must make available all registration certificates and other information for permanent identification of animals on test and of their offspring. They must provide the supervisor with freshening and dry dates, purchase and sale dates, abortion dates and death dates. When requested, they must cooperate and assist the supervisor in obtaining feed weights, roughage quality, value of product, breeding dates, and any other information needed for the calculation of complete DHIA records.

3. IDENTIFICATION OF ANIMALS

Every dairy animal in DHIA herds must be positively identified and recorded in the owner's herd book within 60 days after entering the herd by birth or purchase. A herd registry page is provided for this purpose. Cows on test must be permanently identified with either (1) registration number if registered, or (2) uniform series eartags as used in DHIA disease eradication and artificial insemination. (State code, 1-, 2-, or 3-letter prefix, 4 digits.)

Tattoo numbers or branded numbers, private eartag or neckchain numbers, or band numbers are acceptable as temporary or secondary identification until the animals enter the milking herd.

4. LACTATION RECORDS, REPORTS

DHIA lactation records shall be computed and reported (DHIA-718 or DHIA-1095) for every cow on test for each calving when the cow milks 305 days, driesoff, or leaves the herd, whichever occurs first. Each lactation record shall be recorded on an individual lifetime cow record form in States where individual cow records are used.

5. MONTHLY AND YEARLY REPORTS

The supervisor shall make monthly and yearly reports as required by the State agricultural college. Yearly production records for each herd shall be reported at the close of the testing year for each herd on form DHIA-780, DHIA-205-9, or DHIA-1105 and be forwarded to the Dairy Cattle Research Branch, Animal Husbandry Research Division, U. S. Department of Agriculture. The local and State extension services may request additional monthly and yearly reports.

6. COWS TO BE TESTED

DHIA records must be kept on all dairy cows in the herd or on the farm that have ever calved, regardless of ownership, except as specified in the rule on permanent nurse cows. DHIA herds shall consist of five or more dairy cows that have freshened at least once, located on one or more farms under one management.

Members owning or operating more than one farm may divide their herd into farm units, and each may be tested as a separate unit when the units are maintained as separate herds and there is no shifting of cows between herds. In single herds involving two or more distinctly individual breeds, separate herd averages or a composite herd average may be calculated and reported as such.

The owner or his management is required to report to the supervisor all cows added to or removed from the herd since the previous test, as well as any first-calf heifers that have calved. When a cow is sold for dairy purposes, the owner must provide the supervisor with the name and address of the purchaser.

In any case involving the questionable assignment of cows to a herd to influence a herd average, the decision of the local or State Board of Directors in council with the State Extension Dairyman in Charge of Production Testing shall be considered final. In special cases involving joint operation of herds or groups of cows the local board of directors in council with the State Extension Dairyman shall decide the policy.

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7. MONTHLY AND BIMONTHLY TESTING

Associations may operate on the monthly or bimonthly basis or on both.

8. NUMBER OF COWS TESTED DAILY

The number of cows tested daily shall be left to the judgment and discretion of the DHIA board of directors and State Extension Dairyman concerned. They will consider the ability of the supervisor, milking facilities, and type of records being kept.

The number of cows tested shall be limited as much as necessary to allow sufficient time for the supervisor on each visit to the farm to properly comply with all the Standard DHIA Rules, such as the identification of all animals in the herd, including eartagging when necessary; proper supervision of milking, including the identification of the cows being milked; using the proper procedures and methods of sampling, including the handling of samples and the use of a locked sample case; obtaining and using his own data; properly recording data on the barn sheet; keeping the owner's herd book up-to-date; and making all required monthly, yearly, and lactation reports. Sufficient time also shall be allowed for the supervisor to check all his work and reports for accuracy before leaving the farm.

9. DOUBLING HERDS

It is recommended that only one herd be tested in 1 day. Any deviation from this rule shall be by approval of the local board of directors in consultation with the State Extension Dairyman.

10. SUPERVISION OF MILKERS AND COWS

The herd owner shall milk his cows in such order that on the testing day cows being milked at the same time will be in close proximity and full view of the supervisor for observation.

The supervisor must be in position to observe the milkers, machines, and cows during the entire milking process.

11. IDENTIFICATION OF COWS BEING MILKED

The supervisor shall verify the identity of each cow when entered on test, by registration certificate if registered or by eartag numbers if not registered, and record the information on appropriate forms. Thereafter, at each milking the supervisor must assure himself of the correct identity of each cow as she is milked.

Supplemental Identification, such as numbers on neckbands or neckchains, numbers branded on the cows, or other permanent identification marks that have been properly cross-checked with the registration certificates and eartag numbers, may be used for positive identification at succeeding monthly test supervisions. Unless such suitable supplemental identification is provided and maintained by the owner, the registration certificates for registered cattle and eartags for grade cattle must be used at each monthly test for identification of all animals tested. Numbered, sealed neckchains or neckbands are recommended.

12. SUPERVISOR USES OWN DATA

The supervisor, or a person or central processing service authorized and approved by the State Extension Dairyman and the responsible organization, shall compute the production records for a testing period from the data obtained on the testing date.

13. CENTERING THE TESTING DAY

Production records shall be calculated by centering the testing day according to the method outlined in the DHIA Supervisor's Manual.

14. SUPERVISOR'S ROUTE

In order that the herd owner may not know the exact day the supervisor will visit a farm, the supervisor shall from time to time vary his visits to each farm as much as 3 days ahead of, or 3 days after, the centering day. (Regardless of such variation, however, all calculations shall be made on the basis of the centering day established for the herd.)

15. LOCK SAMPLE CASES

All milk samples and glassware and unrecorded barn-book pages shall be securely locked in sample case by supervisor when they are not under his immediate observation.

16. METHOD OF SAMPLING

All weighing, sampling, and recording of each milking of each cow for the 24-hour period must be done by the supervisor or person authorized by the local DHIA board of directors. Each cow's milk must be thoroughly mixed immediately before sampling.

17. LOST SAMPLES

When a sample is lost, the previous month's butterfat test shall be used. When milk weights are not obtained, the pounds of milk for the current testing day shall be estimated from the previous month's record by use of the nurse-cow table in the DHIA Supervisor's Manual. In either case, the record shall be marked "estimated".

18. APPLYING THE BUTTERFAT TEST

All equipment and methods must be approved by the American Dairy Science Association and/or State regulatory agency.

19. ABNORMAL TESTS

In cases of severe sickness or injury, it is suggested that, except for the first month of the lactation, a 40 percent change in total fat from the preceding test be considered abnormal.

Abnormal high or low records due to causes such as sickness, severe injury and off feed shall be handled similarly to lost samples.

20. RETESTS

Owner's Request

If for any reason a herd owner is not satisfied with the test on his herd, he may call for a retest. The herd owner shall pay the cost of the retest.

Surprise Tests

It is recommended that States use surprise tests in their Standard DHIA Program. The DHIR rules for surprise tests shall be followed in carrying out DHIA surprise tests.

The surprise tests may be ordered at any time by the State official in charge or at the recommendation of other supervising agencies and may be done by a different supervisor.

The cost of additional DHIA surprise tests and method of payment shall be determined by the respective State. The DHIR surprise test rules are as follows:

A. One surprise test with a preliminary dry milking is required when:

1. A herd has a rolling herd average of 500 pounds butterfat or more for 6 consecutive months.
2. A herd has a cumulative average of 300 pounds butterfat or more in the first 6 months of a testing year.
3. A herd has an average of 500 pounds butterfat or more for the year.

B. If, after the first 90 days of a lactation, the record of a cow averages 3 pounds or more of fat per day, one surprise test with preliminary milking shall be made within the next 2 months. If, after the first 90 days of lactation, the cow's record averages 3.5 pounds of fat or more per day, a second surprise test with preliminary milking shall be made before the 305th day of lactation. These surprise tests shall include the entire herd, except that in herds requiring more than 1 day's supervision only the cows meeting the surprise test requirements need be included.

Use of Surprise Test. Surprise tests with preliminary milking shall be conducted whenever possible in addition to the regular monthly test. In computing the monthly credits for a cow or herd, results of the surprise test shall be used in lieu of those of the regular monthly test. The breed registry organization shall be notified of the cows and herds on which surprise tests have been scheduled or conducted. The herd owner will pay the costs of the first surprise test made during the calendar year and the breed registry organization will pay for all other extra tests made as required above during the remainder of that calendar year.

21. FRESH COWS - DRY COWS - COWS SOLD

A cow shall not be tested until the seventh day after she calves, counting the day of calving as the first day. The record, however, is started on the fourth day after calving, counting the calving day as the first day. Cows freshening after the supervisor's regular visit and before the end of the testing period shall be given credit for their production during that period, as calculated on the basis of the results of the next test. Dry cows - the dry date is the first day the cow is not milked. The day a cow is sold and leaves the herd counts as the last day in the herd, and she gets production credit for that full day.

22. ABORTING COWS OR COWS FRESHENING WITHOUT GOING DRY

In case a cow aborts while dry, her record shall be figured the same as for a fresh cow. If she aborts while in milk and has carried a calf less than 152 days, her current record shall continue without interruption. If a breeding date is not available and the cow aborts while in milk for less than 200 days, her current record shall continue without interruption. Otherwise the current record shall end and a new lactation shall begin.

23. COWS NURSING CALVES

Temporary Nurse Cow

Cows nursing calves on the testing day are considered for the time being as dry cows. Feed records are taken as usual and recorded in the herd-record book. No milk samples are taken. Milk weights and tests obtained on the last testing day before calves are put on cows or on the first testing day after calves have been removed are used in computing production for the testing period in which calves are nursed, along with the nurse-cow table in DHIA Supervisor's Manual. The recorded number of days in milk for the lactation shall include only the number of days the cow nursed calves during the lactation period.

If records are calculated by a computing center, they shall be coded as required.

Permanent Nurse Cow

At the request of the herd owner, a cow that is to be used as a nurse cow throughout the entire lactation period may be removed from test from the date of freshening until the following date of freshening, provided she has at least one complete lactation record.

Permanent nurse cows are to be reentered on test at the following calving unless they are requalified. Cows are disqualified as permanent nurse cows if at any time they are milked by machine or by hand.

24. YEARLY HERD AVERAGES

The yearly herd average is calculated on a cow-year basis. As outlined in the footnotes on the monthly herd summary, DHIA-12, the total number of cow-days on test for the year is divided by 365 (366 in leap year) to obtain the number of cow-years. The totals for the year are divided by the number of cow-years to obtain the herd averages for the year.

25. YEARLY ASSOCIATION AVERAGE

The association average is found by dividing the total pounds of milk and total pounds of butterfat by the total cow-years.

26. COMPUTING FRACTIONS

The weights of milk at each milking and the day's total of milk are to be recorded to the nearest one-tenth of a pound, the month's milk to the nearest 10 pounds. The price per hundredweight of milk and feed may be taken to the nearest 10 cents. The value of product and cost of feed may be to the nearest whole dollar. If the fraction is less than half, drop it. If half or more, change to the next highest number.

27. FRAUDULENT PRACTICES

Any practice that is intended to create or does create any abnormal percentage of butterfat or an abnormal yield of milk is a violation of DHIA rules. Fraudulent practices shall be referred to the local DHIA board of directors for their consideration. The local board of directors shall decide what action is necessary to prevent or correct such practices.

28. RELATION OF SUPERVISORS AND OWNERS

As an employee of the local dairy-herd-improvement association, the supervisor's duty is to see that the tests are honestly made, accurately recorded, and completely reported. No payment of fees or gratuities to the supervisor is permitted from the member or others with a financial interest in the herd. The supervisor may act as a collecting agent for the association. He may collect payment for dues and fees for the association, provided a receipt is given the member and a carbon copy of the same receipt is given to the association treasurer. The supervisor shall not test his own herd nor the herd of the immediate members of his family. The supervisor is not at liberty to decide which rules are essential and which are not, but is required to observe all of them in detail. Owners or persons in their employ are equally held responsible with the supervisor for enforcement of these rules.

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Dairy-Herd-Improvement Letter
ARS-44-81
(Vol. 36, No. 7)

July 1960

NEW DHIA PROVED-SIRE DATA

The processing of lactation records and the compilation of DHIA Proved-Sire data using 705-III electronic data processing procedures have been completed. The printing of sire records and related reports and mailing them to the various States are now complete.

This operation brings up-to-date all sire tabulations using lactation records reported to November 1959. The next operational run of the 705-III procedures will use all lactation records reported up to the time the "run" is made when all sire data will be compiled on a current basis.

In the first run of the procedures, the following sire data were compiled:

1.	New Proved-Sire Records*	6, 268
2.	Proved-Sire Records retabulated*	15, 511
3.	Daughter-Average Records*	30, 391
	Total Sire Tabulations	52, 170

4. DHIA Proved-Sire List of sires proved or reproved will be published in three parts with a total of about 1, 300 pages and will include summary data for approximately 21, 000 sires. (List will be distributed to those on the mailing list receiving the Dairy-Herd-Improvement Letter.)

5. Daughter-Average List consists of sires not having sufficient dams with records available for proving or reproving the sire. The list will include daughter-average summary data for 30, 391 sires and will consist of some 1, 700 pages. (List will be distributed only to the State Colleges and the AI Studs.)

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*Copies have been sent to the State Colleges.

TABLE 1.--NUMBER OF PROVED-SIRE RECORDS TABULATED IN 1960, BY STATES AND BREEDS [1]

STATE	AYRSHIRE	GUERNSEY	HOLSTEIN	JERSEY	BROWN SWISS	SHORTHORN	RED DANE	RED POLL	TOTAL
ALABAMA	9	79	139	209	4	5	-	-	445
ALASKA	-	-	3	-	-	-	2	-	5
ARIZONA	4	69	92	32	2	-	-	-	199
ARKANSAS	4	53	14	47	4	-	-	-	122
CALIFORNIA	38	132	192	96	22	-	-	-	480
COLORADO	49	79	146	27	39	5	-	-	345
CONNECTICUT	185	480	685	232	87	3	-	-	1,672
DELAWARE	74	176	223	27	8	-	-	-	508
FLORIDA	47	370	139	294	18	-	-	-	868
GEORGIA	29	108	285	162	16	1	-	-	601
HAWAII	-	2	3	-	-	-	-	-	5
IDAHO	17	143	217	177	16	8	-	-	578
ILLINOIS	79	492	1,137	255	224	39	1	1	2,228
INDIANA	83	475	694	284	103	14	-	-	1,653
IOWA	136	395	1,130	296	224	60	-	2	2,243
KANSAS	117	158	502	116	64	26	-	2	985
KENTUCKY	9	109	261	177	41	-	-	-	597
LOUISIANA	7	106	41	86	5	-	-	-	245
MAINE	77	151	249	116	17	8	-	-	618
MARYLAND	204	598	1,088	160	66	15	-	-	2,131
MASSACHUSETTS	187	349	648	287	91	7	-	-	1,569
MICHIGAN	91	363	1,027	253	115	10	43	-	1,902
MINNESOTA	72	380	1,038	240	134	45	-	4	1,913
MISSISSIPPI	7	174	45	125	8	-	-	-	359
MISSOURI	4	220	380	278	66	19	-	-	967
MONTANA	4	36	63	23	19	3	-	-	148
NEBRASKA	26	166	320	31	50	18	-	-	611
NEVADA	-	42	11	28	-	-	-	-	81
NEW HAMPSHIRE	93	172	338	144	26	4	-	-	777
NEW JERSEY	47	436	711	153	108	2	-	-	1,457
NEW MEXICO	2	119	44	52	1	-	-	-	218
NEW YORK	450	787	2,705	558	183	20	1	1	4,705
NORTH CAROLINA	122	427	605	189	19	3	-	-	1,365
NORTH DAKOTA	6	42	159	11	41	12	-	1	272
OHIO	181	435	784	481	192	15	6	1	2,095
OKLAHOMA	61	48	142	103	27	8	-	2	391
OREGON	18	190	165	275	38	6	-	1	693
PENNSYLVANIA	340	1,280	1,947	402	112	14	-	-	4,095
RHODE ISLAND	65	90	142	126	5	-	-	-	428
SOUTH CAROLINA	21	183	123	120	12	-	-	-	459
SOUTH DAKOTA	18	14	82	10	41	1	-	-	166
TENNESSEE	5	135	149	243	9	1	-	-	542
TEXAS	30	122	260	285	37	6	-	-	740
UTAH	1	100	233	71	9	-	-	-	414
VERMONT	193	285	655	450	74	8	-	-	1,665
VIRGINIA	63	615	935	148	48	15	-	-	1,824
WASHINGTON	31	215	305	231	38	3	-	-	823
WEST VIRGINIA	52	147	368	87	13	2	-	1	670
WISCONSIN	55	621	1,969	225	229	27	1	1	3,128
WYOMING	-	1	32	2	7	-	-	-	42
TOTAL [2]	1,247	5,036	10,642	3,721	853	226	45	9	21,779

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[1] The number listed for each State frequently includes 1 or more sires proved with records from some other State as well as from the State indicated.

[2] The totals given here omit duplication of sires.

TABLE 2.--TOTAL NUMBER OF DAUGHTER-AVERAGE TABULATIONS OF DHIA SIRES COMPILED IN 1960, BY BREED

AYRSHIRE	GUERNSEY	HOLSTEIN	JERSEY	BROWN SWISS	SHORTHORN	RED DANE	RED POLL	TOTAL
1,618	7,025	14,842	4,691	1,214	949	16	36	30,391

TABLE 3.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF THE DAUGHTERS OF SIRES PROVED IN 1960, AND THE DAMS OF THESE DAUGHTERS, GROUPED ACCORDING TO BUTTERFAT PRODUCTION RANGE OF THE DAMS TO WHICH THEY WERE MATED

Butterfat production range of dams	Sires	Maintained or increased production	Decreased production	Dam-and-daughter pairs	Average production					
					Dams			Daughters		
					Milk	Butterfat		Milk	Butterfat	
Pounds	Number	Number	Number	Number	Pounds	%	Pounds	Pounds	%	Pounds
Under 275----	212	162	50	1,973	6,248	4.0	252	6,887	4.2	287
275 - 299----	358	251	107	4,126	6,972	4.1	289	7,303	4.2	309
300 - 324----	699	464	235	8,371	7,494	4.2	313	7,756	4.3	332
325 - 349----	1,356	853	503	17,349	8,045	4.2	338	8,206	4.3	351
350 - 374----	2,350	1,301	1,049	36,804	8,675	4.2	363	8,653	4.3	368
375 - 399----	3,514	1,848	1,666	75,401	9,321	4.2	388	9,231	4.2	390
400 - 424----	4,092	1,956	2,136	118,324	10,123	4.1	412	9,930	4.1	410
425 - 449----	3,615	1,538	2,077	132,083	10,957	4.0	436	10,591	4.0	428
450 - 474----	2,560	983	1,577	66,573	11,556	4.0	461	11,110	4.0	448
475 - 499----	1,509	445	1,064	27,532	12,273	4.0	486	11,641	4.0	465
500 - 524----	821	242	579	12,754	12,974	3.9	511	12,189	4.0	484
525 - 549----	387	96	291	6,036	13,186	4.1	535	12,247	4.1	500
550 - 574----	175	41	134	2,666	14,051	4.0	560	12,959	4.0	519
575 - 599----	82	13	69	998	13,891	4.2	585	12,694	4.2	530
600 - 624----	34	6	28	346	14,452	4.2	612	12,930	4.2	545
625 - 649----	11	2	9	107	14,370	4.4	635	13,011	4.3	562
Over 650----	4	-	4	56	15,666	4.3	673	13,939	4.1	578
Total or average--	21,779	10,201	11,578	511,499	10,208	4.1	415	9,965	4.1	411

TABLE 4.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF THE DAUGHTERS OF SIRES PROVED IN 1960, AND THE DAMS OF THESE DAUGHTERS, GROUPED ACCORDING TO MILK PRODUCTION RANGE OF THE DAMS TO WHICH THEY WERE MATED

Milk production range of dams	Sires	Maintained or increased production	Decreased production	Dam-and-daughter pairs	Average production					
					Dams			Daughters		
					Milk	Butterfat		Milk	Butterfat	
Pounds	Number	Number	Number	Number	Pounds	%	Pounds	Pounds	%	Pounds
Under 6,500-	586	385	201	6,685	6,038	4.9	297	6,336	5.0	315
6,500 - 7,499-	1,977	1,083	894	29,122	7,095	4.9	350	7,128	5.0	354
7,500 - 8,499-	3,920	1,755	2,165	83,567	8,007	4.9	391	7,821	4.9	386
8,500 - 9,499-	3,119	1,243	1,876	56,160	8,966	4.6	414	8,657	4.7	403
9,500 -10,499-	2,113	1,005	1,108	34,458	9,987	4.1	408	9,805	4.1	405
10,500 -11,499-	2,550	1,462	1,088	52,770	11,047	3.7	407	11,022	3.7	413
11,500 -12,499-	3,512	1,803	1,709	164,574	11,994	3.6	430	11,787	3.7	430
12,500 -13,499-	2,375	987	1,388	58,957	12,943	3.6	463	12,484	3.6	455
13,500 -14,499-	1,154	364	790	18,721	13,919	3.6	496	13,086	3.6	476
14,500 -15,499-	348	87	261	4,937	14,878	3.6	531	13,723	3.6	497
15,500 -16,499-	100	26	74	1,230	15,899	3.5	563	14,394	3.6	520
Over 16,500-	25	1	24	318	17,028	3.5	599	14,587	3.6	519
Total or average---	21,779	10,201	11,578	511,499	10,208	4.1	415	9,965	4.1	411

TABLE 5.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF THE DAUGHTERS OF SIRES PROVED IN 1960, AND THE DAMS OF THESE DAUGHTERS, GROUPED ACCORDING TO BUTTERFAT PRODUCTION RANGE OF THE DAUGHTERS

					Average production					
					Dams			Daughters		
Butterfat production range of daughters	Sires	Maintained or increased production	Decreased production	Dam-and-daughter pairs	Milk	Butterfat		Milk	Butterfat	
Pounds	Number	Number	Number	Number	Pounds	%	Pounds	Pounds	%	Pounds
Under 275----	321	43	278	3,068	7,077	4.3	301	5,950	4.2	252
275 - 299----	440	93	347	5,144	7,614	4.3	325	6,725	4.3	289
300 - 324----	906	190	716	10,735	8,131	4.3	348	7,289	4.3	313
325 - 349----	1,600	414	1,186	21,520	8,531	4.3	364	7,830	4.3	338
350 - 374----	2,581	749	1,832	44,123	9,023	4.2	383	8,448	4.3	363
375 - 399----	3,466	1,316	2,150	74,337	9,539	4.2	399	9,147	4.2	387
400 - 424----	3,682	1,741	1,941	97,350	10,307	4.0	416	10,056	4.1	412
425 - 449----	3,293	1,814	1,479	107,438	10,947	4.0	433	10,833	4.0	436
450 - 474----	2,535	1,640	895	84,647	11,454	3.9	450	11,510	4.0	461
475 - 499----	1,478	1,027	451	36,144	11,914	3.9	466	12,205	4.0	486
500 - 524----	724	545	179	14,714	12,262	3.9	484	12,673	4.0	510
525 - 549----	395	310	85	7,246	12,857	3.9	503	13,432	4.0	535
550 - 574----	197	172	25	3,045	12,977	3.9	512	13,905	4.0	560
575 - 599----	99	86	13	1,347	13,397	3.9	529	14,505	4.0	585
600 - 624----	44	43	1	462	13,627	4.0	539	15,046	4.1	610
625 - 649----	10	10	-	100	13,484	4.0	535	15,558	4.1	635
Over 650----	8	8	-	79	12,825	4.6	591	14,858	4.6	683
Total or average--	21,779	10,201	11,578	511,499	10,208	4.1	415	9,965	4.1	411

TABLE 6.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF THE DAUGHTERS OF SIRES PROVED IN 1960, AND THE DAMS OF THESE DAUGHTERS, GROUPED ACCORDING TO MILK PRODUCTION RANGE OF THE DAUGHTERS

					Average production					
					Dams			Daughters		
Milk production range of daughters	Sires	Maintained or increased production	Decreased production	Dam-and-daughter pairs	Milk	Butterfat		Milk	Butterfat	
Pounds	Number	Number	Number	Number	Pounds	%	Pounds	Pounds	%	Pounds
Under 6,500-	1,005	164	841	12,090	6,916	5.0	343	5,935	5.1	301
6,500 - 7,499-	2,668	741	1,927	43,437	7,660	4.9	376	7,063	5.0	354
7,500 - 8,499-	3,666	1,580	2,086	74,746	8,284	4.8	397	7,993	4.9	389
8,500 - 9,499-	2,784	1,402	1,382	53,222	9,139	4.5	410	8,956	4.6	409
9,500 -10,499-	2,165	985	1,180	34,916	10,407	3.9	410	10,003	4.0	404
10,500 -11,499-	2,813	1,212	1,601	81,659	11,466	3.6	417	11,036	3.7	411
11,500 -12,499-	3,266	1,744	1,522	127,126	12,173	3.6	436	11,991	3.7	438
12,500 -13,499-	2,054	1,354	700	58,684	12,702	3.6	455	12,943	3.6	469
13,500 -14,499-	910	660	250	19,049	13,371	3.6	478	13,925	3.6	501
14,500 -15,499-	316	241	75	5,073	13,841	3.6	500	14,905	3.6	538
15,500 -16,499-	97	84	13	1,124	14,531	3.6	520	15,879	3.6	569
Over 16,500-	35	34	1	373	14,925	3.6	534	17,149	3.5	605
Total or average---	21,779	10,201	11,578	511,499	10,208	4.1	415	9,965	4.1	411

PRODUCTION RECORDS REPORTED TO THE DAIRY CATTLE RESEARCH BRANCH BY STATE EXTENSION SERVICES, FOR THE PERMANENT FILES DURING 1959 and 1960

	First 6 Months of 1960										1959	
			Herd Test Records Reported by --									
State	Cows on test in all association herds on January 1	Production records reported 1/ 2/	American Dairy Cattle Club	Ayrshire Breeders Association	Brown Swiss Cattle Breeders' Association	American Guernsey Cattle Club	American Jersey Cattle Club	Total records reported		Records Returned 3/	Production records reported 2/	
	Number	Number	Number	Number	Number	Number	Number	Number	Percent	Number	Number	Percent
Maine	20,980	8,291	-	-	-	94	-	8,385	40.0	150	14,438	74.9
N. H	11,742	3,383	-	-	-	126	-	3,509	29.9	94	6,807	62.4
Vt	45,462	9,987	-	-	83	155	-	10,225	22.5	256	26,859	60.3
Mass	22,100	9,022	15	-	226	264	-	9,527	43.1	49	18,630	88.3
R. I	2,764	502	-	-	-	59	-	561	20.3	20	1,455	52.1
Conn	22,035	7,335	-	-	244	524	-	8,103	36.8	45	16,341	74.5
N. Y	151,049	49,919	51	-	320	793	-	51,083	33.8	9,825	179,978	126.4
Pa	139,606	40,109	-	-	167	347	-	40,623	29.1	257	151,683	125.2
N. J	27,516	6,308	-	-	137	486	-	6,931	25.2	118	13,308	51.9
Md	44,181	13,077	-	-	122	390	-	13,589	30.8	124	37,153	91.2
Del	3,595	1,829	-	-	3	42	-	1,874	52.1	15	3,592	105.1
Va	50,961	15,138	-	-	70	773	-	15,981	31.4	630	43,757	78.7
W. Va	8,736	1,788	-	-	14	16	-	1,818	20.8	35	5,840	74.5
Ky	17,348	2,465	-	-	90	90	-	2,645	15.2	123	4,407	34.0
N. C	32,084	6,318	-	-	-	636	-	6,954	21.7	96	17,022	65.7
S. C	10,557	2,006	-	-	78	412	-	2,496	23.6	58	3,800	45.1
Ga	19,715	2,267	-	-	19	132	-	2,418	12.3	58	4,693	30.9
Fla	21,620	2,446	-	-	8	560	-	3,014	13.9	37	5,594	26.7
Ala	17,803	2,489	-	-	-	42	-	2,531	14.2	24	6,330	40.6
Miss	7,678	827	-	-	6	153	-	986	12.8	10	1,911	30.7
Tenn	16,283	61	-	-	-	205	-	266	1.6	-	3,067	23.6
La	3,966	432	-	-	-	89	-	521	13.1	1	865	25.3
Ark	1,918	350	-	-	10	39	-	399	20.8	4	409	38.5
Ohio	60,137	13,056	12	-	876	973	-	14,917	24.8	425	28,618	51.2
Ind	35,789	3,754	27	-	205	509	-	4,495	12.6	61	12,958	36.9
Ill	58,272	16,989	-	-	560	466	-	18,015	30.9	115	35,832	64.2
Mich	60,851	34,084	-	-	359	530	-	34,973	57.5	957	57,958	105.6
Wis	98,986	21,780	20	-	618	217	-	22,635	22.9	134	38,903	41.1
Minn	107,188	24,007	-	-	129	231	-	24,367	22.7	1,336	56,827	58.2
Iowa	54,454	19,986	-	-	541	194	-	20,721	38.1	311	33,620	68.2
Mo	21,714	4,357	-	-	122	102	-	4,581	21.1	125	8,697	40.6
N. Dak	5,403	1,924	-	-	48	18	-	1,990	36.8	135	2,606	60.2
S. Dak	5,883	680	-	-	69	28	-	777	13.2	7	1,123	19.8
Nebr	13,240	954	-	-	50	125	-	1,129	8.5	53	2,132	18.2
Kans	26,110	5,067	-	-	59	117	-	5,243	20.1	139	12,599	51.4
Okla	7,348	1,829	-	-	42	136	-	2,007	27.3	87	1,508	21.9
Tex	21,866	1,712	-	-	86	135	-	1,933	8.8	40	6,002	35.6
Mont	5,559	515	-	-	88	25	-	628	11.3	6	1,141	21.5
Idaho	25,441	3,694	-	-	29	187	-	3,910	15.4	50	7,338	32.6
Wyo	1,441	91	-	-	-	12	-	103	7.1	4	475	29.2
Nev	3,061	6	-	-	-	-	-	6	.2	-	256	13.0
Utah	16,266	2,228	-	-	-	60	-	2,288	14.1	83	11,266	79.5
Colo	15,514	739	-	-	75	37	-	851	5.5	50	2,257	16.6
N. Mex	4,055	109	-	-	-	94	-	203	5.0	6	1,008	33.0
Ariz	25,951	594	-	-	2	27	-	623	2.4	6	2,166	9.2
Wash	43,626	21,681	-	-	2	506	-	22,189	50.9	1,378	16,133	35.0
Oreg	28,737	8,367	-	-	62	230	-	8,659	30.1	119	15,501	58.7
Calif	295,536	1,089	-	-	64	295	-	1,448	.5	5	2,957	1.1
P. R	4,422	251	-	-	-	-	-	251	5.7	19	87	1.8
Hawaii	203	174	-	-	-	-	-	174	85.7	-	91	42.1
Alaska	0	-	-	-	-	-	-	-	-	-	-	-
U. S	1,746,752	376,066	125	-	5,683	11,681	-	393,555	22.5	17,680	927,998	57.7

1/ Includes cows enrolled since January 1, 1960.
2/ Production records reported on DHIA-718 and DHIA-1095.
3/ Records returned to States because of inconsistent or incomplete data.

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National Cooperative Dairy Herd Improvement Program
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AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-84
Dairy-Herd-Improvement Letter (Vol. 36, No. 8)

August 1960

PROVED SIRES IN ARTIFICIAL-BREEDING SERVICE JANUARY 1, 1960

On January 1, 1960, there were 2,544 sires in artificial-breeding service in 62 AB studs operating in the United States. Of the 2,544 sires, 477 or 18.8 percent, were sires with sufficient number of AB progeny to warrant the compilation of AB proofs.

A summary of the 477 AB proved-sire records is given in tables on the following pages.

Issued October 1960

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TABLE 1.--SUMMARY OF PROVED-SIRE RECORDS OF SIRES IN ARTIFICIAL-BREEDING SERVICE JANUARY 1, 1960, BY BREED

Breed	Sires	Dams			Daughters		
		Milk	Butterfat		Milk	Butterfat	
	Number	Pounds	%	Pounds	Pounds	%	Pounds
Ayrshire-------	14	9,599	4.1	395	9,219	4.2	387
Guernsey-------	100	8,478	4.8	407	8,465	4.8	408
Holstein-------	261	12,474	3.6	455	12,523	3.7	465
Jersey---------	68	7,899	5.2	412	7,860	5.3	413
Brown Swiss----	33	10,976	4.1	448	10,965	4.2	459
Shorthorn------	1	9,528	4.4	419	7,375	3.9	291
Total or average-----	477	10,790	4.0	437	10,792	4.1	443

TABLE 2.--NUMBER OF PROVED SIRES IN ARTIFICIAL-BREEDING SERVICE JANUARY 1, 1960, BY AGE AND BREED

Age in years	Ayrshire	Guernsey	Holstein	Jersey	Brown Swiss	Shorthorn	Total
7---------	1	2	3	2	-	-	8
8---------	-	7	18	4	3	-	32
9---------	-	6	25	6	2	-	39
10---------	2	11	17	6	6	-	42
11---------	2	9	27	4	4	-	46
12---------	4	13	33	17	4	-	71
13---------	4	12	37	8	5	-	66
14---------	-	9	25	5	1	-	40
15---------	-	4	12	3	2	-	21
16---------	-	3	10	1	-	-	14
17---------	-	-	15	2	1	-	18
No report--	1	24	39	10	5	1	80
Total------	14	100	261	68	33	1	477

TABLE 3.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF THE DAUGHTERS OF SIRES IN ARTIFICIAL-BREEDING SERVICE JANUARY 1, 1960, AND THE DAMS OF THESE DAUGHTERS, GROUPED ACCORDING TO BUTTERFAT PRODUCTION RANGE OF THE DAMS TO WHICH THEY WERE MATED

Butterfat production range of dams	Sires	Maintained or increased production	Decreased production	Dam-and-daughter pairs	Average production: Dams: Milk	Average production: Dams: Butterfat		Average production: Daughters: Milk	Average production: Daughters: Butterfat	
Pounds	Number	Number	Number	Number	Pounds	%	Pounds	Pounds	%	Pounds
Under 275------	1	-	1	1	5,150	4.9	251	3,290	5.0	165
300 - 324------	1	-	1	6	6,745	4.7	318	7,093	4.4	312
325 - 349------	5	4	1	49	8,293	4.0	336	10,144	4.0	405
350 - 374------	17	12	5	335	7,883	4.6	362	7,875	4.7	370
375 - 399------	56	37	19	2,652	8,259	4.7	387	8,478	4.7	399
400 - 424------	96	60	36	6,163	9,490	4.4	413	9,497	4.4	420
425 - 449------	134	90	44	14,719	11,275	3.9	437	11,287	3.9	446
450 - 474------	103	63	40	9,068	11,886	3.9	460	11,836	3.9	465
475 - 499------	33	17	16	1,180	12,786	3.8	486	12,956	3.8	498
500 - 524------	15	9	6	216	13,801	3.7	510	13,708	3.7	511
525 - 549------	11	4	7	246	13,954	3.9	538	13,472	3.9	529
550 - 574------	2	-	2	6	16,053	3.5	557	13,615	3.5	474
575 - 599------	3	-	3	3	12,116	4.8	586	8,708	4.5	393
Total or average-----	477	296	181	34,644	10,790	4.0	437	10,792	4.1	443

TABLE 4.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF THE DAUGHTERS OF SIRES IN ARTIFICIAL-BREEDING SERVICE JANUARY 1, 1960, AND THE DAMS OF THESE DAUGHTERS, GROUPED ACCORDING TO MILK PRODUCTION RANGE OF THE DAMS TO WHICH THEY WERE MATED

Milk production range of dams	Sires	Maintained or increased production	Decreased production	Dam-and-daughter pairs	Average production: Dams: Milk	Average production: Dams: Butterfat		Average production: Daughters: Milk	Average production: Daughters: Butterfat	
Pounds	Number	Number	Number	Number	Pounds	%	Pounds	Pounds	%	Pounds
Under 6,500---	2	1	1	11	5,785	5.1	293	6,232	5.2	322
6,500 - 7,499---	16	12	4	299	7,162	5.1	368	7,507	5.1	386
7,500 - 8,499---	93	53	40	4,593	8,070	5.0	403	8,064	5.0	404
8,500 - 9,499---	65	32	33	2,385	8,928	4.7	424	8,937	4.8	426
9,500 -10,499---	23	14	9	585	10,035	4.2	417	9,835	4.2	410
10,500 -11,499---	28	18	10	935	11,087	3.9	436	11,267	4.0	447
11,500 -12,499---	139	102	37	19,979	12,090	3.7	442	12,132	3.7	453
12,500 -13,499---	84	55	29	5,435	12,886	3.7	471	13,063	3.7	485
13,500 -14,499---	22	8	14	383	14,035	3.6	510	13,317	3.7	493
14,500 -15,499---	4	1	3	38	14,801	3.8	559	12,948	3.9	500
Over 15,499---	1	-	1	1	17,754	3.2	562	14,120	3.4	487
Total or average------	477	296	181	34,644	10,790	4.0	437	10,792	4.1	443

TABLE 5.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF THE DAUGHTERS OF SIRES IN ARTIFICIAL-BREEDING SERVICE JANUARY 1, 1960, GROUPED ACCORDING TO THE BUTTERFAT PRODUCTION RANGE OF THESE DAUGHTERS

Butterfat production range of daughters	Sires	Maintained or increased production	Decreased production	Dam-and-daughter pairs	Average production: Dams: Milk	Dams: Butterfat		Daughters: Milk	Daughters: Butterfat	
Pounds	Number	Number	Number	Number	Pounds	%	Pounds	Pounds	%	Pounds
Under 275------	2	-	2	2	7,737	5.4	421	4,170	4.9	206
275 - 299------	1	-	1	2	9,528	4.4	419	7,375	3.9	291
300 - 324------	4	-	4	21	7,499	4.9	369	6,546	4.8	316
325 - 349------	12	1	11	173	9,210	4.3	394	7,803	4.3	335
350 - 374------	20	5	15	640	8,516	4.7	399	7,739	4.7	362
375 - 399------	45	15	30	1,787	8,743	4.6	401	8,398	4.6	389
400 - 424------	82	39	43	4,435	9,495	4.4	416	9,265	4.5	413
425 - 449------	96	58	38	8,269	10,955	4.0	433	10,903	4.0	437
450 - 474------	104	83	21	11,841	11,700	3.8	448	11,789	3.9	462
475 - 499------	53	45	8	5,238	11,899	3.9	460	12,333	3.9	486
500 - 524------	34	28	6	1,656	12,786	3.7	479	13,334	3.8	510
525 - 549------	13	12	1	529	12,986	3.8	494	13,970	3.8	535
550 - 574------	5	4	1	17	11,194	4.3	483	12,730	4.4	554
575 - 599------	2	2	-	13	12,624	3.9	488	14,860	3.9	581
600 - 624------	2	2	-	18	13,397	3.8	512	15,171	4.1	616
625 - 649------	1	1	-	1	15,208	3.6	549	18,550	3.4	636
Over 649------	1	1	-	2	13,195	3.7	494	16,190	4.1	667
Total or average-----	477	296	181	34,644	10,790	4.0	437	10,792	4.1	443

TABLE 6.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF THE DAUGHTERS OF SIRES IN ARTIFICIAL-BREEDING SERVICE JANUARY 1, 1960, GROUPED ACCORDING TO THE MILK PRODUCTION RANGE OF THESE DAUGHTERS

Milk production range of daughters	Sires	Maintained or increased production	Decreased production	Dam-and-daughter pairs	Average production: Dams: Milk	Dams: Butterfat		Daughters: Milk	Daughters: Butterfat	
Pounds	Number	Number	Number	Number	Pounds	%	Pounds	Pounds	%	Pounds
Under 6,500---	5	-	5	26	7,707	5.2	401	5,382	5.2	279
6,500 - 7,499---	24	6	18	520	7,810	5.1	399	7,082	5.2	367
7,500 - 8,499---	85	39	46	4,027	8,348	4.9	406	8,077	4.9	397
8,500 - 9,499---	64	47	17	2,772	8,708	4.8	415	8,989	4.8	432
9,500 -10,499---	23	9	14	629	10,576	4.0	427	10,084	4.2	426
10,500 -11,499---	44	21	23	3,006	11,563	3.8	441	11,080	4.0	438
11,500 -12,499---	110	76	34	13,731	12,164	3.7	444	12,059	3.7	452
12,500 -13,499---	72	55	17	7,587	12,511	3.7	462	12,941	3.7	480
13,500 -14,499---	40	33	7	2,159	13,183	3.6	480	13,908	3.7	509
14,500 -15,499---	7	7	-	180	13,335	3.7	495	14,949	3.7	560
15,500 -16,499---	2	2	-	6	13,634	3.7	500	15,910	3.8	605
Over 16,499---	1	1	-	1	15,208	3.6	549	18,550	3.4	636
Total or average------	477	296	181	34,644	10,790	4.0	437	10,792	4.1	443

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AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-85

Dairy-Herd-Improvement Letter (Vol. 36, No. 9)

September 1960

DHIA LACTATION AVERAGES
1956-1957

For many years there has been a widespread demand for information on Dairy-Herd-Improvement Association lactation averages by breed, by State.

Until the sire-proving system of handling and processing DHIA lactation records in the Branch was converted to Electronic Data Processing Machine procedures it was not practical to assemble and compile such data.

During the operation of the new EDPM sire-proving procedures in July, DHIA lactation records for 1956 and 1957 calving dates were selected from the master-tape file and compiled as an auxillary operation.

In future operations of the EDPM sire-proving system lactation records for subsequent years 1958 and 1959 will be selected and tabulated. Thereafter the tabulations will be compiled annually to provide current data on lactation averages.

On the following pages are tabulations of DHIA 305-day lactation records with 1956 and 1957 calving dates, grouped by breed by State. These tabulations include records received from the various States by the Dairy Cattle Research Branch, Animal Husbandry Research Division, Agricultural Research Service, as a part of the National Cooperative Dairy-Herd-Improvement Program. All lactations were standardized to a mature-equivalent, twice-a-day milking basis.

Issued October 1960

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305-DAY STANDARDIZED LACTATION AVERAGES BY CALVING YEAR AND STATE

ALL BREEDS

STATE		1956 CALVING YEAR REGISTERED NO. REC.	 MILK LBS	 FAT LBS	 NON-REGISTERED NO. REC.	 MILK LBS	 FAT LBS	 ALL NO. REC.	 MILK LBS	 FAT LBS	1957 CALVING YEAR REGISTERED NO. REC.	 MILK LBS	 FAT LBS	 NON-REGISTERED NO. REC.	 MILK LBS	 FAT LBS	 ALL NO. REC.	 MILK LBS	 FAT LBS
MAINE	11	4478	10527	441	1250	9947	409	5728	10400	434	3018	10954	453	1169	10291	415	4187	10769	443
N.H.	12	3680	10195	418	452	9804	401	4132	10161	416	2294	10677	440	344	10171	413	2638	10611	436
VT.	13	7910	9940	427	2260	9043	383	10170	9740	417	5155	10569	453	1524	9529	408	6679	10332	443
MASS.	14	6603	10636	446	1337	10438	410	7940	10603	440	4252	11080	459	1158	10531	420	5410	10962	451
R.I.	15	1018	9626	432	3	12797	535	1021	9635	432	604	10802	461	3	10587	379	607	10801	460
CONN.	16	6633	10632	447	1352	11140	432	7985	10718	444	4241	10981	464	1887	11600	448	6128	11171	459
N.Y.	21	49458	11390	437	23099	11083	413	72557	11292	429	27469	11544	444	6329	11066	411	33798	11455	438
N.J.	22	6561	10824	445	1213	11407	429	7774	10925	443	4462	11304	461	1200	11826	447	5662	11415	458
PA.	23	35407	10617	427	12632	10314	402	48039	10537	420	37459	10646	429	83	9134	345	37542	10643	428
OHIO	31	18412	10263	418	2112	11195	425	20524	10359	419	11905	10236	423	2260	11136	423	14165	10380	423
IND.	32	9188	10647	447	533	11722	442	9721	10706	446	6074	10614	444	522	11522	441	6596	10686	444
ILL.	33	14075	11368	452	5517	11653	436	19592	11449	448	10272	11235	451	6576	11489	433	16848	11334	444
MICH.	34	13173	11213	438	1001	11190	424	14174	11211	437	9258	11440	446	441	11590	435	9699	11447	445
WIS.	35	15114	11090	425	10112	11112	419	25226	11099	423	9648	11790	452	5319	11513	434	14967	11691	446
MINN.	41	11734	11021	428	28826	11095	408	40560	11074	414	6451	10905	425	18091	11082	407	24542	11035	412
IOWA	42	11098	11278	446	11913	11329	426	23011	11305	436	6597	11294	447	7285	11436	432	13882	11368	439
MO.	43	4069	9730	416	2538	9935	409	6607	9809	413	2748	9685	418	1705	10263	416	4453	9907	417
N.DAK.	45	571	10131	387	1079	11235	410	1650	10853	402	410	10971	417	759	11421	412	1169	11263	414
S.DAK.	46	526	11809	453	89	13303	471	615	12025	456	342	11537	448	75	12430	443	417	11698	448
NEBR.	47	1996	11455	459	716	11577	441	2712	11487	454	1232	10872	438	632	10776	405	1864	10839	427
KANS.	48	5614	10980	439	3882	11592	439	9496	11230	439	3566	10769	432	2964	10998	418	6530	10873	426
DEL.	50	1279	10025	405	1126	9602	387	2405	9827	396	729	10543	429	266	9768	400	995	10336	421
MD.	51	10743	10415	427	7405	10460	409	18148	10434	420	7228	10763	439	3970	10716	416	11198	10746	430
VA.	52	8424	10530	438	11034	10490	408	19458	10507	421	5563	10662	443	7481	10739	417	13044	10706	429
W.VA.	54	2005	9752	397	1570	9643	380	3575	9704	389	1185	9944	404	761	10069	391	1946	9993	399
N.C.	55	5356	9612	404	2907	10306	392	8263	9856	399	3939	9765	408	1768	10040	387	5707	9850	402
S.C.	56	1969	8856	400	38	9920	413	2007	8876	400	1422	8323	396	44	10574	441	1466	8391	397
GA.	57	1410	8792	387	1170	9600	377	2580	9159	383	1291	8669	377	724	9447	366	2015	8948	373
FLA.	58	3032	7759	361	730	9019	412	3762	8004	371	2219	7702	348	423	8716	392	2642	7865	355
KY.	61	2396	9375	402	514	10986	411	2910	9660	404	1591	9504	402	649	10744	402	2240	9863	402
TENN.	63	2014	8085	391	35	10740	441	2049	8130	392	1323	8086	390	50	12524	499	1373	8248	394
ALA.	64	1449	7707	352	830	7260	296	2279	7544	332	1063	7036	325	556	6917	289	1619	6996	313
MISS.	65	1273	7491	355	184	8370	362	1457	7602	356	820	7387	347	71	8717	377	891	7493	349
ARK.	71	445	7467	372	5	8206	322	450	7475	371	240	7440	365				240	7440	365
LA.	72	805	6781	321	100	7172	311	905	6825	320	472	6381	305	63	8529	327	535	6634	307
OKLA.	73	1280	9502	399	271	11149	421	1551	9789	403	883	9493	395	293	11317	413	1176	9947	400
TEXAS	74	2942	8899	410	883	9484	381	3825	9034	403	2121	8541	400	605	10481	404	2726	8971	400
MONT.	81	506	9854	428	284	11659	420	790	10503	425	390	10600	441	347	11770	426	737	11151	434
IDAHO	82	3227	10150	436	922	11270	442	4149	10399	437	2259	10747	452	763	11665	449	3022	10979	451
WYO.	83	121	12917	468	98	11119	393	219	12112	435	112	11882	424	94	10954	391	206	11458	409
COLO.	84	1547	10658	426	268	10425	410	1815	10624	424	926	10509	419	85	11094	424	1011	10558	420
N.MEX.	85	686	9812	434	78	9823	459	764	9813	436	326	9168	416	17	8486	440	343	9134	417
ARIZ.	86	559	10839	430	575	12946	484	1134	11907	457	448	10980	417	718	11686	429	1166	11407	424
UTAH	87	2295	10725	431	2291	11178	415	4586	10951	423	1349	10891	436	2214	11242	421	3563	11109	427
NEV.	88	119	9382	509				119	9382	509	94	9453	482	1	14350	515	95	9504	482
WASH.	91	6192	10821	475	8190	11400	471	14382	11151	473	4063	11095	482	5150	11600	476	9213	11377	479
OREG.	92	4397	9383	456	5075	10311	441	9472	9880	448	3411	9644	462	4872	10624	448	8283	10220	454
CALIF.	93	2599	11710	501	942	12619	480	3541	11952	495	1367	11821	510	380	12948	493	1747	12066	506
HAWAII	95	32	11056	401	5	11534	387	37	11099	399	10	11502	357	1	10170	505	11	11326	379
ALASKA	96	5	11320	414	5	13046	501	10	12183	458									
U.S. AVG.		296425	10662	432	159451	10827	416	455876	10722	426	204317	10743	437	92692	11020	422	297009	10829	432

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE, 1956-1957

AYRSHIRE

		1956 CALVING YEAR									1957 CALVING YEAR								
STATE		REGISTERED			NON-REGISTERED			ALL			REGISTERED			NON-REGISTERED			ALL		
	CODE	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS
MAINE	11	413	9621	391	21	9111	367	434	9596	390	239	9999	404	25	8991	363	264	9904	400
N.H.	12	509	9043	370	20	9255	373	529	9051	370	295	9631	395	10	9218	367	305	9617	394
VT.	13	1092	9486	385	85	8456	345	1177	9411	382	613	9860	403	53	9625	382	666	9842	402
MASS.	14	901	10119	421	71	8607	353	972	10009	416	491	10404	431	43	9363	395	534	10321	428
R.I.	15	250	10334	427				250	10334	427	154	10524	435				154	10524	435
CONN.	16	747	9784	406	32	9779	394	779	9784	406	404	9740	400	26	9665	384	430	9736	399
N.Y.	21	3822	9503	388	447	8938	359	4269	9444	385	1324	9744	397	103	9004	367	1927	9704	396
N.J.	22	107	9235	385	4	9593	384	111	9248	385	31	10595	434	4	8323	333	35	10336	422
PA.	23	2028	9340	389	142	8679	357	2170	9296	387	1739	9206	384				1739	9206	384
OHIO	31	1248	9620	386	29	9066	369	1277	9608	385	738	9679	391	26	9613	389	764	9677	391
IND.	32	343	9440	374				343	9440	374	220	9315	367				220	9315	367
ILL.	33	342	8681	361	10	8562	340	352	8678	360	271	8779	369	5	10322	400	276	8807	370
MICH.	34	317	9484	389	3	12393	422	320	9511	389	166	10117	418	3	10750	388	169	10125	419
WIS.	35	233	8589	350	7	10197	428	240	8636	353	109	9157	377	2	12785	425	111	9222	377
MINN.	41	318	8922	361	91	9362	356	409	9024	360	236	8974	363	51	8756	338	287	8935	359
IOWA	42	491	9381	378	64	8955	362	555	9332	376	282	9132	369	31	10107	410	313	9229	373
MO.	43	7	10141	433	2	11440	457	9	10430	438	9	8123	327	1	7720	403	10	8083	335
N.DAK.	45	4	4890	195	4	6078	246	8	5484	220									
S.DAK.	46	68	9095	359	1	7070	271	69	9066	358	37	9441	381				37	9441	381
NEBR.	47	8	9626	376	7	7851	324	15	8798	352	9	8829	381	20	8177	346	29	8379	357
KANS.	48	878	9388	387	78	9510	388	956	9398	387	528	9204	386	69	8928	370	597	9172	384
DEL.	50	185	8902	362	18	8622	364	203	8877	362	100	8859	351	5	8452	328	105	8840	350
MD.	51	989	9594	395	150	8965	369	1139	9511	391	510	10011	413	73	9884	405	583	9995	412
VA.	52	150	8173	329	43	9336	386	193	8432	342	65	7844	310	47	8894	359	112	8285	331
W.VA.	54	177	9059	371	27	7533	311	204	8857	363	61	9561	393	6	7457	286	67	9373	384
N.C.	55	280	9366	372	3	9523	384	283	9368	372	147	9827	391	15	8433	348	162	9698	387
S.C.	56	75	8314	333				75	8314	333	47	8155	339				47	8155	339
GA.	57	83	7498	290	5	7814	317	88	7516	292	34	7164	285	5	8976	353	39	7397	294
FLA.	58	66	8181	317	14	10444	453	80	8577	341	102	8343	324	7	9053	397	109	8389	328
KY.	61	7	8641	337	3	8220	341	10	8515	338	4	7965	306	5	9846	383	9	9010	349
TENN.	63										11	9299	363				11	9299	363
ALA.	64	20	5838	232	14	6484	249	34	6104	239	26	5714	236	3	5843	222	29	5727	234
MISS.	65	31	7796	314				31	7796	314	11	8581	341				11	8581	341
ARK.	71																		
LA.	72										2	7775	302				2	7775	302
OKLA.	73	200	9175	372				200	9175	372	98	8793	357				98	8793	357
TEXAS	74	103	8516	331	2	8740	309	105	8520	330	39	8564	334	1	11080	439	40	8627	337
MONT.	81	28	9788	397				28	9788	397	9	9403	397				9	9403	397
IDAHO	82	62	10102	392	11	9729	378	73	10046	390	26	10688	424	3	8977	377	29	10511	419
WYO.	83																		
COLO.	84	173	9907	412				173	9907	412	71	9266	385	3	9763	426	74	9286	386
N.MEX.	85										1	9090	382				1	9090	382
ARIZ.	86	48	9405	355				48	9405	355	45	9950	389	1	14810	591	46	10056	393
UTAH	87	1	8090	283	9	10829	433	10	10555	418	3	8287	335	7	10896	444	10	10113	411
NEV.	88																		
WASH.	91	178	9986	406	91	9763	411	269	9911	408	105	10019	413	36	9711	418	141	9940	414
OREG.	92	35	9454	396	57	9339	388	92	9383	391	16	10045	415	82	8702	352	98	8921	362
CALIF.	93	230	11834	491	40	9074	350	270	11425	470	139	11322	474	24	9253	350	163	11017	456
HAWAII	95																		
ALASKA	96																		
U.S. AVG		17247	9468	387	1605	9010	365	18852	9429	385	10067	9560	392	795	9207	373	10862	9534	391

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE, 1956-1957

GUERNSEY

STATE	CODE	1956 CALVING YEAR									1957 CALVING YEAR								
		REGISTERED			NON-REGISTERED			ALL			REGISTERED			NON-REGISTERED			ALL		
		NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS
MAINE	11	869	8251	400	200	7880	388	1069	8182	397	499	8351	406	171	8199	394	670	8313	403
N.H.	12	587	8220	383	64	8167	379	651	8215	382	339	8517	395	61	8144	372	400	8460	391
VT.	13	881	8218	392	262	7617	359	1143	8080	384	507	8518	408	154	7857	372	661	8364	400
MASS.	14	1407	8563	414	168	8195	382	1575	8524	411	829	8902	429	170	8336	399	999	8806	424
R.I.	15	273	8921	432				273	8921	432	148	9287	450				148	9287	450
CONN.	16	2191	8827	421	255	8489	400	2446	8792	419	1427	9216	443	330	8830	417	1757	9143	438
N.Y.	21	5282	8484	408	2071	8522	397	7353	8495	405	3089	8818	424	545	8425	388	3634	8759	419
N.J.	22	1914	8579	416	116	8299	389	2030	8563	414	1274	8898	435	124	8532	397	1398	8866	432
PA.	23	8648	8211	399	1915	7827	368	10563	8141	393	9363	8086	393	19	7039	311	9382	8084	393
OHIO	31	3800	8447	397	196	8649	395	3996	8457	397	2480	8581	405	191	7932	370	2671	8534	402
IND.	32	3322	8888	434	63	8727	401	3385	8885	433	2036	8877	433	54	8891	422	2090	8878	432
ILL.	33	2329	8878	428	459	8688	397	2788	8847	423	1756	8835	428	478	8613	399	2234	8787	422
MICH.	34	2092	8583	419	136	8247	394	2228	8562	417	1429	8756	428	43	8886	431	1472	8760	428
WIS.	35	2106	8160	391	1622	8229	391	3728	8190	391	1199	8490	409	754	8474	402	1953	8484	406
MINN.	41	1814	8159	397	3089	7859	377	4903	7970	384	1008	8183	398	1685	7916	375	2693	8016	383
IOWA	42	1477	8626	421	1792	8206	390	3269	8396	404	945	8722	423	1028	8223	391	1973	8462	406
MO.	43	897	8129	400	454	7853	379	1351	8036	393	653	8575	423	294	8460	409	952	8539	419
N.DAK.	45	39	7612	375	48	7769	369	87	7699	372	30	8295	402	36	8062	369	66	8168	384
S.DAK.	46	51	8070	378				51	8070	378	32	7998	378	1	5590	232	33	7925	374
NEBR.	47	507	8989	445	96	8699	425	603	8943	442	315	8617	425	56	8556	406	371	8608	422
KANS.	48	658	8145	417	273	8185	397	931	8157	411	355	8132	414	186	8091	396	541	8118	408
DEL.	50	386	7628	366	373	7936	374	759	7779	370	234	8206	399	98	8481	396	332	8287	398
MD.	51	2887	8314	408	1389	8041	379	4276	8226	398	1380	8549	419	568	7952	376	2448	8410	409
VA.	52	3240	8294	407	1979	8007	378	5219	8185	396	2117	8477	417	1064	8101	380	3181	8351	405
W.VA.	54	280	7711	379	216	7936	364	496	7809	372	175	7837	385	124	8209	366	299	7991	377
N.C.	55	1798	8055	390	343	7613	355	2141	7985	385	1519	8165	396	230	7463	345	1749	8073	389
S.C.	56	915	7833	371	11	7894	379	926	7834	371	963	8154	392	9	8691	395	872	8159	392
GA.	57	211	7769	376	195	7931	357	406	7846	367	251	7222	350	81	7210	332	332	7219	346
FLA.	58	1599	7121	325	247	8666	393	1846	7328	334	1082	6900	317	73	8025	368	1155	6971	320
KY.	61	269	7855	376	28	7569	341	297	7828	373	295	7762	374	13	7571	338	308	7754	372
TENN.	63	248	8371	406	5	8790	400	253	8379	406	269	8134	401	6	9252	445	275	8159	402
ALA.	64	198	7835	368	109	6244	277	307	7270	336	196	7295	338	55	6518	290	251	7124	327
MISS.	65	493	7586	354	15	8440	397	508	7611	355	393	7365	343	6	7553	345	399	7368	343
ARK.	71	122	7033	328	1	8200	298	123	7042	328	66	7163	336				66	7163	336
LA.	72	249	6512	312	18	6021	281	267	6479	310	135	6148	289	8	6941	320	143	6192	291
OKLA.	73	255	7793	370	23	8486	384	278	7850	371	228	7956	374	7	7203	325	235	7934	372
TEXAS	74	273	7671	355	54	8067	376	327	7736	359	324	7658	359	39	8521	375	363	7750	361
MONT.	81	86	8683	444	10	7370	326	96	8547	431	45	9237	466	9	7979	379	54	9027	452
IDAHO	82	898	8761	420	151	8688	416	1049	8750	420	558	9074	433	108	8855	415	666	9038	430
WYO.	83	2	8575	399	7	7783	343	9	7959	355	2	9135	431	3	7983	419	5	8444	423
COLO.	84	229	8428	402	73	8135	381	302	8357	397	134	8184	394	13	8325	407	147	8196	396
N.MEX.	85	346	9279	432	60	9243	435	406	9274	432	136	8860	415	9	7791	394	145	8794	414
ARIZ.	86	220	8928	409	30	9876	453	250	9042	414	151	9274	416	61	8454	392	212	9038	409
UTAH	87	420	8406	400	121	7682	356	541	8244	390	264	8262	392	112	7816	363	376	8129	383
NEV.	88										36	8950	418				36	8950	418
WASH.	91	1691	9187	458	1725	9123	438	3416	9154	448	1179	9241	463	1010	9168	442	2189	9207	453
OREG.	92	1166	8691	429	1128	8872	421	2294	8780	425	999	8910	441	988	9113	430	1987	9010	436
CALIF.	93	847	9183	457	124	9688	465	971	9247	458	459	9483	472	36	8334	414	495	9399	468
HAWAII	95	1	6470	329				1	6470	329									
ALASKA	96																		
U.S. AVG		60473	8394	406	21714	8224	389	82187	8349	401	43308	8456	410	11110	8353	394	54918	8435	407

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE, 1956-1957

HOLSTEIN

STATE	CODE	1956 CALVING YEAR									1957 CALVING YEAR								
		REGISTERED			NON-REGISTERED			ALL			REGISTERED			NON-REGISTERED			ALL		
		NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS
MAINE	11	2228	12651	480	809	11008	419	3037	12213	463	1651	12859	484	794	11317	426	2445	12358	465
N.H.	12	1928	11808	442	297	10773	407	2225	11670	437	1219	12322	465	222	11366	434	1441	12175	460
VT.	13	3040	12201	449	1083	10598	390	4123	11780	433	2226	12751	473	732	10978	410	2958	12313	458
MASS.	14	2805	12705	466	961	11259	420	3766	12336	455	2065	12841	475	836	11331	426	2901	12406	461
R.I.	15	160	13256	478	2	14660	531	162	13273	478	188	13583	504	3	10587	379	191	13535	502
CONN.	16	2563	13138	481	1009	12000	443	3572	12817	470	1703	13526	502	1442	12415	456	3145	13017	481
N.Y.	21	35332	12445	450	18996	11653	417	54328	12168	439	19563	12628	457	5295	11584	416	24858	12405	449
N.J.	22	3611	12475	464	1063	11862	434	4674	12336	457	2618	12829	476	1043	12285	453	3661	12674	469
PA.	23	21974	11988	444	9752	11059	411	31726	11703	434	23861	12038	449	63	9854	358	23924	12032	449
OHIO	31	7907	12336	434	1634	12002	434	9541	12279	434	4966	12313	439	1780	11920	430	6746	12210	437
IND.	32	3761	13184	477	436	12367	451	4197	13099	474	2646	12927	473	430	12146	449	3076	12818	470
ILL.	33	8447	12753	470	4729	12105	442	13176	12520	460	6162	12625	471	5819	11832	436	11981	12240	454
MICH.	34	8693	12524	452	775	11958	433	9468	12478	450	6307	12701	461	368	12104	437	6675	12668	459
WIS.	35	10910	12043	438	8035	11859	428	18945	11965	434	7298	12661	463	4288	12240	442	11586	12505	455
MINN.	41	7618	12360	445	24375	11661	413	31993	11827	421	4052	12305	444	15568	11570	412	19620	11721	418
IOWA	42	5944	13105	473	9189	12206	436	15133	12559	451	3548	13094	475	5777	12237	441	9325	12563	454
MO.	43	1729	12052	441	1518	11264	420	3247	11684	431	1125	11773	433	1142	11225	421	2267	11497	427
N.DAK.	45	333	11162	403	978	11524	414	1311	11432	411	258	11801	426	702	11649	414	960	11690	418
S.DAK.	46	321	13232	479	76	13677	473	397	13318	478	197	12960	469	69	12530	446	266	12848	463
NEBR.	47	1145	13281	483	591	12209	446	1736	12916	470	688	12601	462	535	11205	408	1223	11991	438
KANS.	48	2998	12957	476	3338	12078	445	6336	12494	460	2029	12461	463	2564	11421	424	4593	11881	441
DEL.	50	632	12046	439	704	10555	394	1336	11260	415	356	12755	468	151	10765	407	507	12162	450
MD.	51	5625	12242	452	5622	11176	418	11247	11709	435	4100	12395	460	3210	11289	422	7310	11910	443
VA.	52	4209	12720	465	8573	11188	415	12782	11692	432	2328	12803	470	6120	11319	425	8948	11788	439
W.VA.	54	1078	11390	413	1103	10518	386	2181	10949	399	669	11461	414	552	10844	398	1221	11182	407
N.C.	55	2073	12069	428	2345	10953	400	4418	11477	413	1655	11978	429	1355	10783	398	3010	11440	415
S.C.	56	354	11791	419	15	11219	434	369	11768	419	63	11557	422	23	11567	457	86	11560	431
GA.	57	386	12156	432	695	10813	390	1081	11293	405	423	11761	421	528	10141	371	951	10862	393
FLA.	58	190	11778	431	114	11001	420	304	11486	427	259	10661	380	112	10140	381	371	10504	381
KY.	61	994	11627	417	422	11721	423	1416	11655	419	709	11574	421	575	11137	407	1284	11378	415
TENN.	63	264	11444	409	22	11916	454	286	11481	412	164	11683	420	39	13608	516	203	12053	439
ALA.	64	265	10013	339	317	8893	315	582	9403	326	143	9047	312	189	8289	301	332	8615	305
MISS.	65	70	11077	397	65	10504	387	135	10801	392	58	11162	411	23	11737	438	81	11325	419
ARK.	71	19	11757	429	3	8283	301	22	11283	412	5	12770	455				5	12770	455
LA.	72	86	9793	349	38	8729	321	124	9467	340	46	8989	314	41	9857	343	87	9398	328
OKLA.	73	378	12679	448	216	11905	429	594	12397	441	290	12316	436	263	11726	418	553	12036	427
TEXAS	74	558	12733	455	486	11290	411	1044	12061	434	352	12335	450	412	11745	423	764	12017	436
MONT.	81	159	12810	454	262	11993	424	421	12302	435	138	13577	477	318	12108	428	456	12552	443
IDAHO	82	1175	13196	471	645	12509	455	1820	12952	465	948	13652	488	577	12646	458	1525	13272	477
WYO.	83	117	13009	468	91	11375	397	208	12294	437	106	12075	427	90	11094	391	196	11625	410
COLO.	84	740	12569	449	174	11748	431	914	12413	446	479	12229	436	63	12124	439	542	12217	436
N.MEX.	85	156	13024	454	10	12718	462	166	13005	454	65	12584	440				65	12584	440
ARIZ.	86	227	13862	471	540	13146	487	767	13358	482	238	12669	423	603	12178	436	841	12317	432
UTAH	87	1325	12697	459	1953	11756	422	3278	12136	437	785	12991	469	1855	11888	429	2640	12216	441
NEV.	88	5	15328	520				5	15328	520	2	14285	496	1	14350	515	3	14307	502
WASH.	91	2374	13739	496	4865	13013	484	7239	13251	488	1607	14153	510	3292	12993	488	4899	13374	495
OREG.	92	694	12648	454	2320	12277	452	3014	12363	453	544	13132	475	2451	12310	457	2995	12459	460
CALIF.	93	1067	14458	532	747	13439	489	1814	14038	515	504	15135	556	305	13934	512	809	14692	539
HAWAII	95	31	12133	403	5	11534	387	36	12050	401	10	11502	357	1	16170	505	11	11926	370
ALASKA	96	5	11320	414	1	12560	412	6	11527	414									
U.S. AVG		158703	12443	453	121999	11675	424	280702	12109	440	111916	12518	459	72621	11746	428	184537	12214	447

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE, 1956-1957

JERSEY

STATE	CODE	1956 CALVING YEAR REGISTERED NO. REC.	1956 REGISTERED MILK LBS	1956 REGISTERED FAT LBS	1956 NON-REGISTERED NO. REC.	1956 NON-REGISTERED MILK LBS	1956 NON-REGISTERED FAT LBS	1956 ALL NO. REC.	1956 ALL MILK LBS	1956 ALL FAT LBS	1957 CALVING YEAR REGISTERED NO. REC.	1957 REGISTERED MILK LBS	1957 REGISTERED FAT LBS	1957 NON-REGISTERED NO. REC.	1957 NON-REGISTERED MILK LBS	1957 NON-REGISTERED FAT LBS	1957 ALL NO. REC.	1957 ALL MILK LBS	1957 ALL FAT LBS
MAINE	11	859	8000	420	210	7959	403	1069	7992	416	567	8317	434	174	7868	398	741	8212	426
N.H.	12	566	8082	429	60	8032	428	626	8077	429	376	8402	450	43	7465	390	419	8306	444
VT.	13	2695	8118	433	805	7477	385	3500	7971	422	1689	8585	460	550	8025	417	2239	8448	449
MASS.	14	1159	8458	450	112	7628	383	1271	8385	444	660	8880	470	100	8253	419	760	8798	463
R.I.	15	329	7905	414	1	9070	544	330	7909	414	103	8513	446				103	8513	446
CONN.	16	895	8594	451	39	7882	394	934	8565	449	535	8348	442	70	8716	448	605	8391	443
N.Y.	21	3416	7721	409	1355	7942	401	4771	7784	406	2131	7718	407	307	7761	389	2438	7724	404
N.J.	22	541	8514	457	12	8558	421	553	8515	456	287	8762	467	13	8603	430	300	8756	466
PA.	23	2168	7753	411	734	7357	380	2902	7653	404	2041	7603	402	1	3550	202	2042	7601	402
OHIO	31	4008	7976	412	207	7918	402	4215	7973	412	2682	7845	408	213	7678	403	2895	7833	408
IND.	32	1202	7983	417	24	7559	368	1226	7974	416	846	7785	405	33	7852	376	879	7787	404
ILL.	33	1241	7911	411	160	7998	410	1401	7921	411	847	7861	408	119	8079	415	966	7887	409
MICH.	34	1309	7741	411	42	8044	405	1351	7750	411	823	7531	400	18	8108	409	841	7543	400
WIS.	35	643	7494	396	250	7074	367	893	7376	388	395	7755	416	172	7598	400	567	7707	411
MINN.	41	870	7730	408	831	7479	391	1701	7607	400	565	7547	397	479	7567	394	1044	7556	395
IOWA	42	1220	7761	409	502	7645	397	1722	7727	406	659	7868	414	270	7882	410	929	7872	413
MO.	43	1088	7557	401	521	7917	402	1609	7673	402	722	7532	398	236	7899	403	958	7622	399
N.DAK.	45	7	8054	438				7	8054	438									
S.DAK.	46	17	6608	370	1	8320	526	18	6703	379	14	6787	387				14	6787	387
NEBR.	47	118	8409	442	15	7957	427	133	8358	441	65	8306	436	10	8469	441	75	8327	437
KANS.	48	500	7620	406	112	7782	400	612	7650	405	308	7365	396	77	6984	348	385	7288	387
DEL.	50	65	7508	404	22	7484	383	87	7502	398	35	8208	433	6	6903	361	41	8017	422
MD.	51	1015	7394	393	188	7893	394	1203	7472	393	562	7356	388	85	7856	400	647	7422	389
VA.	52	703	8391	447	411	7981	407	1114	8240	433	446	8226	434	235	7900	401	681	8113	422
W.VA.	54	433	7434	387	214	7213	374	647	7361	383	249	7518	398	71	7584	399	320	7533	398
N.C.	55	1157	7788	393	204	7397	356	1361	7729	388	585	7685	390	133	7318	351	718	7617	383
S.C.	56	563	8403	435	2	7420	338	565	8400	434	304	7884	407	3	9897	502	307	7903	408
GA.	57	722	7437	379	259	7661	361	981	7496	374	575	7090	361	102	7575	366	677	7163	362
FLA.	58	1134	7903	402	350	8547	421	1484	8055	407	752	7701	385	230	8235	405	982	7826	389
KY.	61	1026	7652	399	57	7405	361	1083	7639	397	510	7637	395	53	7381	359	563	7613	392
TENN.	63	1498	7441	385	6	8048	405	1504	7444	385	877	7373	381	5	7994	430	882	7376	382
ALA.	64	962	7086	355	381	6214	286	1343	6839	336	689	6608	329	295	6134	282	984	6466	315
MISS.	65	667	7005	354	104	7027	341	771	7008	352	355	6725	340	41	7158	347	396	6769	341
ARK.	71	296	7336	386	1	7980	408	297	7338	386	160	7260	373				160	7260	373
LA.	72	454	6288	320	43	6290	314	497	6288	320	289	6065	310	14	5546	285	303	6041	309
OKLA.	73	352	7481	386	25	7798	400	377	7502	387	195	7399	385	21	7511	383	216	7410	384
TEXAS	74	1882	7941	412	336	7116	341	2218	7816	401	1303	7656	400	150	7505	356	1453	7640	396
MONT.	81	162	7501	410	11	7755	423	173	7517	411	102	7702	422	20	8101	419	122	7768	422
IDAHO	82	948	7854	422	106	7800	409	1054	7849	421	630	8046	429	69	8181	430	699	8059	429
WYO.	83													1	7210	319	1	7210	319
COLO.	84	200	7369	401	13	6695	347	213	7328	397	128	7280	400	3	7247	367	131	7279	400
N.MEX.	85	182	8075	422	8	10559	636	190	8179	431	117	7663	406	8	9269	493	125	7766	412
ARIZ.	86	64	7766	412	3	8573	387	67	7802	411	34	8087	410	7	8117	364	41	8092	402
UTAH	87	526	7725	391	197	7648	377	723	7704	388	299	7641	390	230	7797	388	529	7710	389
NEV.	88	114	9121	508				114	9121	508	56	9603	522				56	9603	522
WASH.	91	1779	8593	476	1421	8810	472	3200	8690	474	1158	8626	473	763	8989	477	1921	8778	474
OREG.	92	2318	8706	476	1524	8445	441	3842	8603	462	1625	8821	476	1310	8732	451	2935	8781	465
CALIF.	93	385	9393	509	30	9023	466	415	9366	506	222	9202	501	15	9890	520	237	9246	503
HAWAII	95																		
ALASKA	96																		
U.S. AVG		44458	7906	416	11909	7866	403	56367	7898	413	28463	7869	414	6755	8050	412	35218	7904	414

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE, 1956-1957

BROWN SWISS

STATE	CODE	1956 CALVING YEAR									1957 CALVING YEAR								
		REGISTERED			NON-REGISTERED			ALL			REGISTERED			NON-REGISTERED			ALL		
		NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS
MAINE	11	25	10210	403	1	10740	467	26	10230	406	17	10864	475				17	10864	475
N.H.	12	52	8381	344	1	7660	301	53	8368	344	41	8730	355				41	8730	355
VT.	13	153	10464	431	17	9258	369	170	10344	424	92	10538	438	25	10182	412	117	10462	432
MASS.	14	318	11047	463	19	12556	518	337	11132	466	196	10957	464	5	9168	404	201	10912	462
R.I.	15	4	9548	375				4	9548	375	11	8979	365				11	8979	365
CONN.	16	193	11313	464	16	10026	416	209	11215	460	162	11774	492	17	11295	445	179	11728	488
N.Y.	21	1463	10168	417	193	9901	400	1656	10137	415	771	10198	419	74	10199	419	845	10198	419
N.J.	22	388	10201	422	18	10871	453	406	10231	423	252	10617	440	16	10911	454	268	10634	441
PA.	23	502	9929	408	79	9240	387	581	9835	405	352	9891	407				352	9891	407
OHIO	31	1290	10893	448	29	10321	432	1319	10881	448	920	11130	463	42	11284	475	962	11137	464
IND.	32	449	10933	452	10	12463	503	459	10967	453	257	11323	463	4	11663	457	261	11329	463
ILL.	33	1446	11456	469	135	10906	436	1581	11409	466	1030	11078	456	143	10144	417	1173	10964	452
MICH.	34	624	10633	424	6	10227	414	630	10629	423	438	10628	421				438	10628	421
WIS.	35	1046	10377	419	172	9605	380	1218	10268	414	609	11123	452	96	9894	400	705	10955	445
MINN.	41	788	10449	425	343	10029	400	1131	10322	417	415	10676	432	255	9615	385	670	10272	414
IOWA	42	1525	11046	450	321	10399	420	1846	10934	445	902	10939	449	160	9823	401	1062	10771	442
MO.	43	203	9701	400	24	9323	410	227	9661	401	153	9885	414	14	10389	444	167	9927	416
N.DAK.	45	93	9986	401	42	9775	401	135	9921	401	92	10463	429	19	9764	405	111	10343	425
S.DAK.	46	69	11907	500	11	11741	469	80	11884	496	62	11165	476	5	12422	446	67	11259	473
NEBR.	47	135	10337	431	5	9844	426	140	10319	431	78	10685	441	9	8117	325	87	10420	429
KANS.	48	295	10601	445	60	11095	477	355	10685	450	181	9984	423	57	9645	400	238	9903	417
DEL.	50	11	11839	499	9	11293	497	20	11594	498	4	12975	558	2	8030	360	6	11327	492
MD.	51	133	8915	373	48	11399	482	181	9574	402	103	9994	410	28	11762	500	131	10372	430
VA.	52	74	10791	456	14	11963	507	88	10977	464	54	10514	443	10	12311	502	64	10795	452
W.VA.	54	37	7918	327	8	7498	305	45	7843	323	31	9340	371	6	10117	399	37	9466	375
N.C.	55	8	10853	428	9	10600	433	17	10719	430	22	9837	391	22	9471	390	44	9654	391
S.C.	56	62	11959	473	10	10701	433	72	11784	468	45	10559	425	9	10146	425	54	10490	425
GA.	57	8	9183	372	16	9211	366	24	9201	368	8	10433	422	7	10991	445	15	10693	432
FLA.	58	43	9308	368	3	12113	526	46	9491	378	24	9273	363	1	7890	306	25	9218	360
KY.	61	100	8813	359	4	10470	459	104	8877	363	73	9574	391	2	9915	446	75	9583	393
TENN.	63	2	13120	548	2	10750	512	4	11935	530	2	12860	516				2	12860	516
ALA.	64				8	7398	310	8	7398	310	9	6278	249	14	6694	284	23	6531	270
MISS.	65	12	8840	347				12	8840	347	3	11220	437				3	11220	437
ARK.	71	8	8755	362				8	8755	362	3	12177	473				3	12177	473
LA.	72	16	8796	339				16	8796	339									
OKLA.	73	47	10736	438	2	10940	423	49	10744	438	47	10800	432	1	11330	451	48	10811	432
TEXAS	74	61	10429	428	2	8710	369	63	10375	426	77	10085	399	1	12380	494	78	10114	400
MONT.	81	41	11772	478				41	11772	478	63	11486	464				63	11486	464
IDAHO	82	54	10183	417	3	9147	402	57	10128	417	29	10375	430	6	9300	380	35	10191	422
WYO.	83	2	11855	522				2	11855	522	4	8125	335				4	8125	335
COLO.	84	156	10790	441	3	8317	344	159	10743	439	87	11225	459	2	6630	248	89	11122	454
N.MEX.	85	2	9585	382				2	9585	382	7	8617	376				7	8617	376
ARIZ.	86													45	9887	389	45	9887	389
UTAH	87	14	9351	378	6	13158	532	20	10494	424	7	10271	415	6	9217	425	13	9785	419
NEV.	88																		
WASH.	91	107	11137	461	24	11408	486	131	11186	466	82	11683	474	17	11129	462	99	11588	472
OREG.	92	112	10800	454	14	10070	450	126	10719	453	160	11056	470	19	11228	471	179	11074	470
CALIF.	93	70	12754	534	1	12820	580	71	12755	535	39	13187	551				39	13187	551
HAWAII	95																		
ALASKA	96																		
U.S. AVG		12241	10656	436	1688	10226	416	13929	10604	434	8014	10763	443	1139	10013	409	9153	10670	438

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE, 1956-1957

MILKING **SHORTHORN**

STATE	CODE	1956 CALVING YEAR									1957 CALVING YEAR								
		REGISTERED			NON-REGISTERED			ALL			REGISTERED			NON-REGISTERED			ALL		
		NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS
MAINE	11	84	8133	314	9	8774	337	93	8195	316	45	8235	322	5	9790	370	50	8390	327
N.H.	12	38	8227	302	10	7035	279	48	7979	297	24	9428	362	8	8213	307	32	9124	349
VT.	13	49	9245	352	8	8629	352	57	9158	352	28	9532	371	4	10550	421	32	9659	377
MASS.	14	13	8325	314	6	9153	386	19	8587	336	11	8828	341	4	7783	325	15	8549	337
R.I.	15	2	9980	354				2	9980	354									
CONN.	16	44	7425	287	1	8390	343	45	7447	289	10	7498	297	2	9360	375	12	7808	310
N.Y.	21	143	8480	327	36	9035	360	179	8592	333	91	8204	313	5	8436	338	96	8216	314
N.J.	22																		
PA.	23	87	8446	326	10	8830	353	97	8485	329	103	8238	311				103	8238	311
OHIO	31	146	7909	301	8	6864	288	154	7854	300	102	8191	302	4	9725	385	106	8249	306
IND.	32	111	8709	323				111	8709	323	69	9342	351	1	5610	210	70	9289	349
ILL.	33	244	8395	319	14	8030	319	258	8375	319	193	8022	308	9	9643	377	202	8094	311
MICH.	34	138	8021	301	1	13360	493	139	8059	303	95	8064	299				95	8064	299
WIS.	35	161	7882	296	16	9345	354	177	8014	301	34	8707	332	4	12180	432	38	9073	343
MINN.	41	294	7940	306	94	8460	320	388	8066	309	167	8220	314	47	9558	374	214	8514	327
IOWA	42	405	8261	313	45	7790	307	450	8214	313	244	8387	320	18	7837	320	262	8349	320
MO.	43	145	8264	334	19	9501	395	164	8407	341	81	8712	356	18	9666	405	99	8885	365
N.DAK.	45	82	8226	327	7	6417	229	89	8084	319	22	8119	325	1	8630	311	23	8141	324
S.DAK.	46																		
NEBR.	47	83	7669	300	2	7455	278	85	7664	300	77	7242	286	2	7465	309	79	7248	287
KANS.	48	285	7921	317	20	7939	322	305	7922	317	165	7849	320	10	9667	373	175	7953	323
DEL.	50													4	10508	387	4	10508	387
MD.	51	94	8994	364	8	10180	403	102	9087	367	73	8675	352	6	11097	478	79	8859	361
VA.	52	48	7774	311	13	9840	391	61	8214	328	53	7794	320	5	10290	349	58	8009	323
W.VA.	54				2	8165	329	2	8165	329				2	7245	261	2	7245	261
N.C.	55	40	6548	248	3	9863	395	43	6780	258	11	7489	275	13	8808	382	24	8203	333
S.C.	56																		
GA.	57													1	6090	256	1	6090	256
FLA.	58				2	7550	340	2	7550	340									
KY.	61													1	10330	368	1	10330	368
TENN.	63	2	6350	238				2	6350	238									
ALA.	64	4	7255	280	1	8350	322	5	7474	288									
MISS.	65													1	10210	446	1	10210	446
ARK.	71										6	8482	338				6	8482	338
LA.	72				1	6650	321	1	6650	321									
OKLA.	73	47	8528	331	5	7561	332	52	8435	331	25	7370	289	1	12550	453	26	7569	295
TEXAS	74	65	8060	313	3	8603	380	68	8084	316	26	7900	294	2	10115	403	28	8058	302
MONT.	81	30	7694	297	1	10110	444	31	7772	302	33	7601	284				33	7601	284
IDAHO	82	90	8451	318	6	8285	325	96	8441	318	68	9178	339				68	9178	339
WYO.	83																		
COLO.	84	49	7880	300	5	8808	328	54	7966	303	27	7796	292	1	6670	244	28	7755	291
N.MEX.	85																		
ARIZ.	86				2	11370	483	2	11370	483				1	15310	508	1	15310	508
UTAH	87	9	6382	236	5	7102	265	14	6639	246				4	9180	419	4	9180	419
NEV.	88																		
WASH.	91	63	9473	359	64	10055	419	127	9766	389	32	9531	353	32	9587	400	64	9559	376
OREG.	92	72	8665	323	27	9121	374	99	8790	337	67	8758	320	18	9951	437	85	9011	344
CALIF.	93																		
HAWAII	95																		
ALASKA	96																		
U.S. AVG		3167	8193	315	454	8747	348	3621	8262	319	1982	8287	319	234	9429	380	2216	8407	325

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE, 1956-1957

RED DANE

		1956 CALVING YEAR									1957 CALVING YEAR								
		REGISTERED			NON-REGISTERED			ALL			REGISTERED			NON-REGISTERED			ALL		
STATE	CODE	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS
MAINE	11																		
N.H.	12																		
VT.	13													6	9305	402	6	9305	402
MASS.	14																		
R.I.	15																		
CONN.	16																		
N.Y.	21				1	11840	373	1	11840	373									
N.J.	22																		
PA.	23																		
OHIO	31				9	9091	390	9	9091	390				4	9213	334	4	9213	334
IND.	32																		
ILL.	33																		
MICH.	34				38	9547	374	38	9547	374				9	10754	427	9	10754	427
WIS.	35				10	8981	363	10	8981	363				3	9987	370	3	9937	370
MINN.	41				1	4520	196	1	4520	196									
IOWA	42													1	8600	321	1	8600	321
MO.	43																		
N.DAK.	45																		
S.DAK.	46																		
NEBR.	47																		
KANS.	48													1	7910	310	1	7910	310
DEL.	50																		
MD.	51																		
VA.	52																		
W.VA.	54																		
N.C.	55																		
S.C.	56																		
GA.	57																		
FLA.	58																		
KY.	61																		
TENN.	63																		
ALA.	64																		
MISS.	65																		
ARK.	71																		
LA.	72																		
OKLA.	73																		
TEXAS	74																		
MONT.	81																		
IDAHO	82																		
WYO.	83																		
COLO.	84																		
N.MEX.	85																		
ARIZ.	86																		
UTAH	87																		
NEV.	88																		
WASH.	91																		
OREG.	92				1	14390	539	1	14390	539				4	10005	420	4	10005	420
CALIF.	93																		
HAWAII	95																		
ALASKA	96				4	13168	524	4	13168	524									
U.S. AVG			7254	301	64	9654	384	64	9654	384		8145	320	28	9856	393	28	9856	393

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE, 1956-1957

RED POLL

STATE	CODE	1956 CALVING YEAR									1957 CALVING YEAR								
		REGISTERED			NON-REGISTERED			ALL			REGISTERED			NON-REGISTERED			ALL		
		NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS	NO. REC.	MILK LBS	FAT LBS
MAINE	11																		
N.H.	12																		
VT.	13																		
MASS.	14																		
R.I.	15																		
CONN.	16																		
N.Y.	21																		
N.J.	22																		
PA.	23																		
OHIO	31	13	10928	424				13	10928	424	17	10021	387				17	10021	387
IND.	32																		
ILL.	33	26	8016	330	10	10958	466	36	8833	368	13	7436	297	3	10480	446	16	8007	325
MICH.	34																		
WIS.	35	15	6489	263				15	6489	263	4	9040	360				4	9040	360
MINN.	41	32	7335	308	2	7265	282	34	7332	307	8	6948	265	6	8295	306	14	7525	282
IOWA	42	36	7204	323				36	7204	323	17	7670	336				17	7670	336
MO.	43																		
N.DAK.	45	13	7041	316				13	7041	316	8	7950	321	1	6580	274	9	7798	316
S.DAK.	46																		
NEBR.	47																		
KANS.	48				1	11230	462	1	11230	462									
DEL.	50																		
MD.	51																		
VA.	52				1	8500	286	1	8500	286									
W.VA.	54																		
N.C.	55																		
S.C.	56																		
GA.	57																		
FLA.	58																		
KY.	61																		
TENN.	63																		
ALA.	64																		
MISS.	65																		
ARK.	71																		
LA.	72																		
OKLA.	73	1	8730	329				1	8730	329									
TEXAS	74																		
MONT.	81																		
IDAHO	82																		
WYO.	83																		
COLO.	84																		
N.MEX.	85																		
ARIZ.	86																		
UTAH	87																		
NEV.	88																		
WASH.	91																		
OREG.	92				4	8663	343	4	8663	343									
CALIF.	93																		
HAWAII	95																		
ALASKA	96																		
U.S. AVG		136	7663	323	18	9916	408	154	7926	333	67	8250	333	10	8779	345	77	8319	334

305-DAY STANDARDIZED LACTATION AVERAGES BY CALVING YEAR, BY STATE, BY BREED, BY CALVING MONTH, 1956

UNITED STATES

1956 CALVING YEAR

AYRSHIRE

CALV. MONTH	REGISTERED			NON-REGISTERED			ALL		
	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	1532	9715	395	130	9170	372	1662	9672	393
FEBRUARY	1465	9697	395	161	9349	377	1626	9663	393
MARCH	1466	9618	391	138	8912	359	1604	9557	388
APRIL	999	9514	389	98	8819	351	1097	9452	385
MAY	767	9324	379	72	8399	342	839	9245	376
JUNE	748	9003	367	83	8548	345	831	8958	365
JULY	1200	8980	370	106	8505	344	1306	8941	368
AUGUST	1720	9021	371	161	8889	362	1881	9009	370
SEPTEMBER	2196	9221	380	183	9138	379	2379	9214	379
OCTOBER	2218	9558	392	185	9161	370	2403	9527	390
NOVEMBER	1653	9775	400	169	9253	373	1822	9727	398
DECEMBER	1283	9988	405	119	9169	370	1402	9919	402
YEAR AVERAGE	17247	9468	387	1605	9010	365	18852	9429	385

GUERNSEY

	REGISTERED			NON-REGISTERED			ALL		
	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	5851	8618	413	2117	8343	391	7968	8545	407
FEBRUARY	5152	8651	415	1877	8377	390	7029	8578	408
MARCH	4874	8474	406	1972	8306	390	6846	8425	402
APRIL	3742	8474	408	1389	8303	389	5131	8428	403
MAY	3248	8386	403	1121	8092	380	4369	8310	397
JUNE	3280	8099	391	1133	7841	371	4413	8033	386
JULY	4420	7907	385	1414	7838	373	5834	7890	382
AUGUST	5815	7916	387	1952	7895	376	7767	7911	384
SEPTEMBER	6311	8121	397	2559	8083	389	8870	8110	395
OCTOBER	6633	8466	412	2573	8345	399	9206	8432	408
NOVEMBER	6098	8667	419	2049	8475	400	8147	8619	414
DECEMBER	5049	8828	424	1558	8538	400	6607	8759	419
YEAR AVERAGE	60473	8394	406	21714	8224	389	82187	8349	401

HOLSTEIN

CALV. MONTH	REGISTERED			NON-REGISTERED			ALL		
	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	15543	12695	460	11192	11762	425	26735	12304	445
FEBRUARY	12979	12532	454	9191	11684	422	22170	12180	440
MARCH	12339	12422	450	8840	11512	417	21179	12042	436
APRIL	8211	12428	452	6105	11499	418	14316	12032	437
MAY	6635	12191	441	5068	11475	416	11703	11881	430
JUNE	7724	12081	439	5958	11280	412	13682	11732	427
JULY	11048	11924	435	7933	11178	410	18981	11612	425
AUGUST	16390	12041	440	12373	11355	415	28763	11746	429
SEPTEMBER	19648	12311	450	16556	11744	427	36204	12052	440
OCTOBER	19428	12625	461	16374	11894	431	35802	12291	448
NOVEMBER	16116	12776	465	12717	12022	435	28833	12443	452
DECEMBER	12642	12905	468	9692	12050	433	22334	12534	453
YEAR AVERAGE	158703	12443	453	121999	11675	424	280702	12109	440

JERSEY

	REGISTERED			NON-REGISTERED			ALL		
	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	4452	8118	424	1185	7950	404	5637	8083	420
FEBRUARY	3909	8159	426	1043	7898	400	4952	8104	421
MARCH	3757	8083	424	1156	7937	403	4913	8049	419
APRIL	2692	8074	424	787	8035	410	3479	8065	421
MAY	2122	7885	414	640	7802	397	2762	7866	410
JUNE	2075	7729	406	534	7708	396	2609	7725	404
JULY	2936	7507	395	709	7602	394	3645	7525	395
AUGUST	4300	7445	395	1159	7635	397	5459	7486	395
SEPTEMBER	5023	7633	405	1387	7634	395	6410	7633	403
OCTOBER	5171	7883	418	1310	7885	407	6481	7883	416
NOVEMBER	4484	8100	426	1134	8062	413	5618	8093	423
DECEMBER	3537	8229	433	865	8215	417	4402	8226	430
YEAR AVERAGE	44458	7906	416	11909	7866	403	56367	7898	413

BROWN SWISS

CALV. MONTH	REGISTERED			NON-REGISTERED			ALL		
	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	1073	10901	443	168	10425	417	1241	10836	439
FEBRUARY	923	10677	432	146	9713	392	1069	10545	427
MARCH	1032	10700	433	145	9857	401	1177	10596	429
APRIL	789	10645	434	102	10403	423	891	10617	433
MAY	772	10410	427	89	9795	392	861	10346	423
JUNE	689	10316	421	76	10198	423	765	10305	421
JULY	950	10264	423	105	9998	406	1055	10237	421
AUGUST	1180	10100	417	114	10215	423	1294	10110	418
SEPTEMBER	1278	10415	432	195	10433	427	1473	10417	431
OCTOBER	1282	10819	446	206	10507	428	1488	10776	444
NOVEMBER	1212	11130	457	188	10493	429	1400	11044	453
DECEMBER	1061	11278	459	154	10183	415	1215	11139	454
YEAR AVERAGE	12241	10656	436	1688	10226	416	13929	10604	434

M SHORTHORN

	REGISTERED			NON-REGISTERED			ALL		
	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	340	8296	321	63	8792	341	403	8373	324
FEBRUARY	275	8340	317	49	8622	347	324	8383	322
MARCH	338	8399	321	54	8600	335	392	8426	323
APRIL	190	8372	313	38	8717	349	228	8429	319
MAY	152	8207	317	30	8262	331	182	8216	319
JUNE	154	7602	290	23	8483	335	177	7716	296
JULY	215	8028	305	21	8651	361	236	8084	310
AUGUST	259	7920	307	37	8922	356	296	8045	313
SEPTEMBER	332	8005	311	39	8904	362	371	8100	316
OCTOBER	353	8157	318	36	9433	371	389	8275	323
NOVEMBER	343	8295	321	29	8612	344	372	8320	323
DECEMBER	216	8449	327	35	8797	355	251	8498	331
YEAR AVERAGE	3167	8193	315	454	8747	348	3621	8262	319

RED DANE

CALV. MONTH	REGISTERED			NON-REGISTERED			ALL		
	NNUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY				10	10114	399	10	10114	399
FEBRUARY				8	10086	395	8	10086	395
MARCH				9	8134	319	9	8134	319
APRIL				1	14390	539	1	14390	539
MAY				3	9037	322	3	9037	322
JUNE				5	10098	412	5	10098	412
JULY									
AUGUST				5	9528	392	5	9528	392
SEPTEMBER				4	10395	378	4	10395	378
OCTOBER				8	9174	368	8	9174	368
NOVEMBER				7	9816	417	7	9816	417
DECEMBER				4	9875	411	4	9875	411
YEAR AVERAGE				64	9654	384	64	9654	384

RED POLL

	REGISTERED			NON-REGISTERED			ALL		
	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	15	7630	316	2	10170	435	17	7929	330
FEBRUARY	17	8204	318	2	10630	432	19	8459	330
MARCH	9	6342	271	7	11077	460	16	8414	354
APRIL	8	8935	371				8	8925	371
MAY	5	7324	316				5	7324	316
JUNE	4	7263	295	1	7160	279	5	7242	292
JULY	6	9140	364	2	8500	366	8	8980	365
AUGUST	9	7256	322	1	8500	286	10	7380	318
SEPTEMBER	12	7800	345	1	10230	446	13	7987	353
OCTOBER	15	7666	334				15	7666	334
NOVEMBER	24	7430	327				24	7430	327
DECEMBER	12	7254	301	2	8250	324	14	7396	304
YEAR AVERAGE	136	7663	323	18	9918	408	154	7926	333

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA OWNER SAMPLER WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-86
(Vol. 36, No. 10)

Dairy-Herd-Improvement Letter

October 1960

DHIA COWS PRODUCE AT ALL-TIME HIGH PRODUCTION LEVEL

1959 was another banner year in dairy-herd improvement. During the year DHIA cows established another all-time high-production level, producing on the average 10,327 pounds of milk and 401 pounds of butterfat.

The year to year success of the DHIA program is evidenced by the data in the following table:

Year	Cows on test	Average production	
		Milk	Butterfat
	Number	Pounds	Pounds
1906	239	5,300	215
1910	1/ 25,000	1/ 5,730	1/ 227
1920	203,472	6,175	247
1930	507,549	7,642	303
1940	676,141	8,133	331
1950	1,088,872	9,172	370
1955	1,333,866	9,502	375
1956	1,406,306	9,713	383
1957	1,479,799	9,894	389
1958	1,548,884	10,068	394
1959	1,607,538	10,327	401

1/ Estimated

As a group, DHIA members, by using their DHIA records to guide them, have consistently improved their herds by improving their culling, feeding, selection, and herd management practices.

What DHIA members do any dairyman can do. Any dairyman can improve his herd regardless of its size or level of production if he keeps records on his cows and herd and if he uses those records to improve the dairy herd.

The National Cooperative Dairy-Herd-Improvement Program offers to dairymen three recordkeeping plans. These plans are: (1) Standard DHIA; (2) Owner Sampler; and (3) Weigh-a-Day-a-Month. One of these plans will meet the needs of any dairyman in the country and will provide the records needed to improve his dairy herd.

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UNIVERSITY OF ILLINOIS

SUMMARY OF THE 1958-59 DAIRY-HERD-IMPROVEMENT-ASSOCIATION RECORDS, BY STATES

State	Associations active 1-1-59	Cow-years	Average production			State	Associations active 1-1-59	Cow-years	Average production		
			Milk	Test	Fat				Milk	Test	Fat
	Number	Number	Pounds	Pct.	Pounds		Number	Number	Pounds	Pct.	Pounds
Ala	18	13,478.3	6,900	4.1	280	Nev	3	--	--	--	--
Alaska	0	--	--	--	--	N. H	9	10,556.0	9,897	4.1	403
Ariz	6	22,006.8	10,638	3.7	396	N. J	27	22,716.2	10,241	3.9	398
Ark	4	417.0	7,593	4.0	304	N. Mex	4	12,000.0	9,815	3.8	369
Calif	33	250,313.3	11,398	3.9	440	N. Y	49	140,972.6	10,965	3.8	412
Colo	22	8,671.0	9,998	3.8	384	N. C	42	23,559.2	8,957	3.9	350
Conn	8	21,774.5	10,705	4.0	429	N. Dak	11	3,409.6	10,367	3.7	380
Del	3	3,097.3	9,498	4.0	377	Ohio	81	44,881.9	10,191	3.9	395
Fla	10	18,035.2	7,199	4.2	301	Okla	20	5,354.6	9,565	3.9	369
Ga	23	12,454.2	8,307	3.9	328	Ore	19	4,544.1	9,413	4.4	411
Hawaii	5	200.4	8,859	3.4	302	Pa	59	117,674.6	10,350	3.9	407
Idaho	19	19,089.4	10,046	4.0	401	P. R	4	3,584.6	5,866	3.5	206
Ill	94	49,637.7	10,513	3.9	407	R. I	3	2,636.5	10,051	3.9	395
Ind	64	31,819.5	10,103	4.0	402	S. C	15	3,962.5	7,801	4.1	318
Iowa	70	42,449.3	10,452	3.8	400	S. Dak	14	4,978.3	10,631	3.6	383
Kans	50	21,134.4	9,692	3.8	373	Tenn	22	11,083.8	8,144	4.2	341
Ky	40	9,636.6	8,884	4.0	351	Tex	20	16,405.5	8,466	4.0	339
La	8	2,217.5	6,091	4.3	263	Utah	24	--	--	--	--
Me	15	18,144.9	10,196	4.1	415	Vt	50	40,624.4	9,389	4.2	391
Md	18	26,413.4	10,021	3.9	395	Va	61	45,899.5	9,725	4.0	385
Mass	13	20,505.6	10,592	4.0	426	Wash	26	35,836.8	10,730	4.1	441
Mich	82	49,825.0	11,230	3.8	426	W. Va	15	6,064.4	9,016	3.9	353
Minn	152	87,042.0	10,812	3.7	399	Wis	73	82,485.6	11,058	3.8	420
Miss	6	4,887.8	6,377	4.4	278	Wyo	7	--	--	--	--
Mo	43	19,341.0	9,304	4.0	375						
Mont	8	3,624.0	10,269	3.7	381	Total or Average	1,500	1,406,665.1	10,327	3.9	401
Nebr	28	11,218.0	9,879	3.8	330						

PRODUCTION RECORDS REPORTED TO THE DAIRY CATTLE RESEARCH BRANCH BY STATE EXTENSION SERVICES, FOR THE PERMANENT FILES DURING 1959 and 1960

	First 9 Months of 1960										1959	
State	Cows on test in all association herds on January 1	Production records reported 1/			Herd Test Records Reported by--			Total records reported		Records Returned 3/	Production records reported 2/	
		718's	1095's	Total	American Dairy Cattle Club	Brown Swiss Cattle Breeders' Association	American Guernsey Cattle Club					
	Number	Number	Number	Number	Number	Number	Number	Number	Pct.	Number	Number	Pct.
Maine	20,980	5,443	2,848	8,291	-	-	140	8,431	40.2	334	14,438	74.9
N. H	11,742	2,676	1,556	4,232	-	-	150	4,382	37.3	188	6,807	62.4
Vt	45,462	7,821	5,097	12,918	-	124	171	13,213	29.1	411	26,859	60.3
Mass	22,100	1,582	7,440	9,022	35	301	307	9,665	43.7	231	18,630	88.3
R. I	2,764	74	428	502	-	-	101	603	21.8	24	1,455	52.1
Conn	22,035	3,228	5,482	8,710	-	299	711	9,720	44.1	262	16,341	74.5
N. Y	151,049	-	49,919	49,919	57	337	1,074	51,387	34.0	11,551	179,978	126.4
Pa	139,606	2	69,876	69,878	-	193	632	70,703	50.6	1,367	151,683	125.2
N. J	27,516	4,877	3,321	8,198	-	206	775	9,179	33.4	251	13,308	51.9
Md	44,181	8,302	7,012	15,314	-	223	482	16,019	36.3	321	37,153	91.2
Del	3,595	-	1,829	1,829	-	6	82	1,917	53.3	54	3,592	105.1
Va	50,961	19,253	7,734	26,987	-	77	913	27,977	54.9	836	43,757	78.7
W. Va	8,736	1,775	879	2,654	-	20	18	2,692	30.8	64	5,840	74.5
Ky	17,348	4,046	615	4,661	-	125	137	4,923	28.4	163	4,407	34.0
N. C	32,084	3,602	9,608	13,210	-	-	863	14,073	43.9	449	17,022	65.7
S. C	10,557	603	3,093	3,696	-	108	632	4,436	42.0	83	3,800	45.1
Ga	19,715	2,590	1,318	3,908	-	19	191	4,118	20.9	106	4,693	30.9
Fla	21,620	3,348	540	3,888	-	10	696	4,594	21.2	102	5,594	26.7
Ala	17,803	1,093	4,194	5,287	-	-	54	5,341	30.0	126	6,330	40.6
Miss	7,678	794	550	1,344	-	9	225	1,578	20.6	19	1,911	30.7
Tenn	16,283	43	74	117	-	-	365	482	3.0	-	3,067	23.6
La	3,966	506	30	536	-	-	135	671	16.9	2	865	25.3
Ark	1,918	63	447	510	-	11	53	574	29.9	10	409	38.5
Ohio	60,137	17,801	2,397	20,198	12	1,130	1,744	23,084	38.4	717	28,618	51.2
Ind	35,789	6,162	-	6,162	40	305	780	7,287	20.4	90	12,958	36.9
Ill	58,272	13,640	16,915	30,555	-	712	749	32,016	54.9	793	35,832	64.2
Mich	60,851	-	46,177	46,177	-	456	625	47,258	77.7	1,555	57,958	105.6
Wis	98,986	-	44,974	44,974	-	20	18	45,012	45.5	64	38,903	41.1
Minn	107,188	29,192	6,307	35,499	-	139	334	35,972	33.6	1,747	56,827	58.2
Iowa	54,454	13,929	11,563	25,492	-	623	232	26,347	48.4	628	33,620	68.2
Mo	21,714	5,545	860	6,405	-	153	177	6,735	31.0	197	8,697	40.6
N. Dak	5,403	1,115	1,450	2,565	-	59	22	2,646	49.0	263	2,606	60.2
S. Dak	5,883	292	651	943	-	90	31	1,064	18.1	15	1,123	19.8
Nebr	13,240	889	489	1,378	-	54	265	1,697	12.8	66	2,132	18.2
Kans	26,110	6,767	1,784	8,551	-	105	199	8,855	33.9	301	12,599	51.4
Okla	7,348	2,460	-	2,460	-	71	233	2,764	37.6	112	1,508	21.9
Tex	21,866	2,772	1,460	4,232	-	92	236	4,560	20.9	66	6,002	35.6
Mont	5,559	701	138	839	-	88	51	978	17.6	9	1,141	21.5
Idaho	25,441	4,719	86	4,805	-	38	263	5,106	20.1	89	7,338	32.6
Wyo	1,441	6	90	96	-	-	12	108	7.5	5	475	29.2
Nev	3,061	-	6	6	-	-	-	6	.2	-	256	13.0
Utah	16,266	-	2,228	2,228	-	-	108	2,336	14.4	85	11,266	79.5
Colo	15,514	562	364	926	-	79	65	1,070	6.9	63	2,257	16.6
N. Mex	4,055	-	109	109	-	-	189	298	7.3	6	1,008	33.0
Ariz	25,951	98	515	613	-	14	40	667	2.6	20	2,166	9.2
Wash	43,626	19,073	8,167	27,240	-	2	883	28,125	64.5	1,706	16,133	35.0
Oreg	28,737	8,531	1,823	10,354	-	70	399	10,823	37.7	251	15,501	58.7
Calif	295,536	1,938	29	1,967	-	93	533	2,593	.9	11	2,957	1.1
P. R	4,422	251	-	251	-	-	-	251	5.7	19	87	1.8
Hawaii	203	193	-	193	-	-	-	193	95.1	6	91	42.1
Alaska	0	-	-	-	-	-	-	-	-	-	0	-
U. S	1,746,752	208,357	332,472	540,829	144	6,461	17,095	564,529	32.3	25,838	927,998	57.7

1/ Includes cows enrolled since January 1, 1960.
2/ Production records reported on DHIA-718 and DHIA-1095.
3/ Records returned to States because of inconsistent or incomplete data.

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA
OWNER SAMPLER
WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-87
Dairy-Herd-Improvement Letter (Vol. 36, No. 11)

November 1960

NEW DHIA PROVED-SIRE LISTS

DHIA Proved-Sire Lists, compiled in July when the DHIA 705-III electronic data processing sire-proving procedures were operated, are being printed and distributed.

The lists include the proved-sire record summaries of 21,779 sires.

The DHIA Proved-Sire List is printed in three parts:

Part I	- Ayrshire and Guernsey sires	352 pages
Part II	- Holstein sires	579 pages
Part III	- Jersey, Brown Swiss, Milking Shorthorn, Red Dane and Red Poll sires	274 pages

The lists are being distributed to those on the mailing list receiving the Dairy-Herd-Improvement Letter.

Part I was mailed the second week of November. Parts II and III are scheduled to be mailed the first of December.

1959 SUMMARY OF DHIA HERD DATA

A summary of 27,796 complete individual herd reports (780's or 205-9's) for the testing year 1958-59 showed that on the average DHIA cows received, during the testing year, 7,000 pounds of succulent roughage, 4,300 pounds of dry roughage, 3,200 pounds of concentrates, and were on pasture 168 days.

On the following page is a tabulation showing by State, the average production and feed received per cow, based on complete herd reports received for the DHIA testing year 1958-59.

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Issued in December 1960

SUMMARY OF THE 1958-59 DAIRY-HERD-IMPROVEMENT ASSOCIATION RECORDS, BY STATES 1/

State	Herds on test 1-1-59	Herd Records used	Average production			Average feed consumed			Concentrates fed per 100 lb. of milk produced	Average days on pasture
			Milk	Test	Fat	Roughage Succulent	Roughage Dry	Concentrates		
	Number	Number	Pounds	%	Pounds	100 Pounds	100 Pounds	100 Pounds	Pounds	Number
Alabama	233	200	6,992	4.1	287	31	21	28	40	333
Alaska	-	-	-	-	-	-	-	-	-	-
Arizona 2/	222	-	-	-	-	-	-	-	-	-
Arkansas	34	13	7,650	4.3	328	31	26	27	35	294
California 2/	2,166	-	-	-	-	-	-	-	-	-
Colorado	309	172	9,778	4.0	380	95	75	31	32	33
Connecticut	523	422	10,671	4.1	428	106	33	39	37	145
Delaware	99	88	9,338	4.1	373	70	20	27	29	211
Florida	106	88	7,164	4.4	311	16	13	49	68	352
Georgia	274	222	8,388	4.0	331	47	21	30	36	327
Hawaii 2/	5	-	-	-	-	-	-	-	-	-
Idaho	825	671	10,068	4.1	401	36	81	22	22	121
Illinois	1,835	1,575	10,491	3.9	408	53	46	31	30	164
Indiana	1,336	1,173	10,068	4.1	403	50	37	29	29	177
Iowa	1,805	1,638	10,451	3.9	402	55	42	34	33	163
Kansas	823	749	9,616	3.9	372	72	38	34	35	201
Kentucky	383	245	8,694	4.1	345	49	31	26	30	205
Louisiana	55	30	6,246	4.4	266	14	5	23	37	337
Maine	630	575	10,006	4.1	409	54	46	33	33	154
Maryland	950	481	10,004	4.0	395	75	35	31	31	197
Massachusetts	536	498	10,383	4.1	419	84	43	37	36	134
Michigan	1,891	1,714	11,219	3.9	427	70	47	32	29	148
Minnesota	3,655	3,242	10,827	3.7	400	70	49	33	30	136
Mississippi	116	91	6,570	4.4	286	32	11	26	40	322
Missouri	650	573	9,124	4.2	377	54	33	31	34	202
Montana	131	82	9,996	3.8	375	33	78	27	27	119
Nebraska	365	230	9,486	4.0	370	65	52	31	33	148
Nevada 2/	35	-	-	-	-	-	-	-	-	-
New Hampshire	321	278	9,791	4.1	400	76	43	29	30	149
New Jersey	573	388	10,277	3.9	396	103	35	30	29	176
New Mexico	34	9	9,480	4.1	380	48	107	30	32	-
New York	3,849	3,409	10,932	3.8	411	87	47	33	30	152
North Carolina	626	562	8,922	4.0	350	99	27	30	34	202
North Dakota	161	102	10,272	3.7	380	68	50	28	27	134
Ohio	1,998	432	9,957	4.0	392	51	43	31	31	181
Oklahoma	179	137	9,255	4.0	362	48	40	33	36	240
Oregon 2/	564	-	-	-	-	-	-	-	-	-
Pennsylvania	4,113	3,921	10,375	4.0	407	87	42	35	34	174
Puerto Rico	34	28	5,991	3.6	212	18	-	24	40	365
Rhode Island	65	63	10,285	4.0	409	116	34	36	35	136
South Carolina	136	63	7,609	4.2	316	58	17	30	39	315
South Dakota	195	165	10,459	3.7	379	62	55	30	29	124
Tennessee	326	283	8,122	4.3	343	52	27	28	34	227
Texas	283	281	8,620	4.1	346	33	38	37	43	290
Utah 2/	466	-	-	-	-	-	-	-	-	-
Vermont	1,094	1,052	9,410	4.3	393	56	42	29	31	153
Virginia	1,108	927	9,703	4.0	384	79	36	31	32	200
Washington 2/	1,070	-	-	-	-	-	-	-	-	-
West Virginia	244	187	8,847	4.1	352	61	32	27	31	177
Wisconsin	2,806	737	10,921	3.9	421	82	40	32	29	154
Wyoming 2/	47	-	-	-	-	-	-	-	-	-
Total or average	40,284	27,796	10,229	3.9	398	70	43	32	31	168

1/ Based on complete individual herd records, as reported by association supervisors.

2/ Complete feed data not reported.

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AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-88
(Vol. 36, No. 12)

Dairy-Herd-Improvement Letter

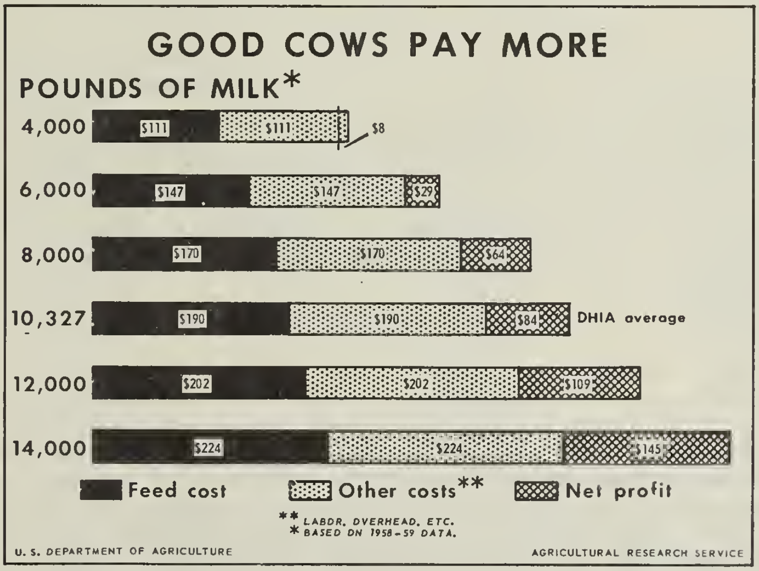
December 1960

YEAR AFTER YEAR--GOOD COWS PAY MORE

A summary of 26,080 yearly herd records completed in 1959 tells a familiar story to DHIA members -- good cows pay more.

While DHIA members have this information on their cows and herds month after month, and year after year, the yearly summaries show all dairymen the profitableness of high-producing cows as compared to low-producing cows.

The following bar graphs, based on the assumption that feed cost represents approximately one-half the total cost of producing milk, show the relationship of high production and high returns.



Issued January 1961

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Growth Through Agricultural Progress

HOW ARE WE DOING IN DAIRY HERD IMPROVEMENT IN U. S. A.?

Often the question is raised "How does the dairy herd improvement (DHIA) and sire-proving programs in this country compare with similar programs in foreign countries? Have the methods and procedures used in improving dairy herds in this country been as effective as those used in foreign countries?

While there is no simple answer to these questions, a recent compilation of data by U. S. D. A.'s Foreign Agricultural Service does provide some interesting information on the questions as indicated in the following table:

Comparison of Cows on Test in 7 Countries

Country	Total cows in milk 1/	Average of all cows in milk 1/	Total number cows on test	Percent	Pounds average for cows on test
United States	19,773,000	6,316	2/ 1,548,684	2/ 7.8	2/ 10,327
Netherlands	1,525,000	9,022	3/ 1,001,073	3/ 65.8	3/ 9,438
Denmark	1,415,000	8,019	4/ 851,246	4/ 59.4	4/ 9,288
United Kingdom	3,884,000	6,819	5/ 688,808	5/ 28.0	5/ 9,194
West Germany	5,572,000	7,070	6/ 1,809,000	6/ 32.5	6/ 8,650
Switzerland	901,000	7,071	7/ 30,000	7/ 3.0	7/ 8,164
Belgium	996,000	8,282	8/ 141,874	8/ 14.6	8/ 8,399

1/ Source: FD6-60 - June 7, 1960 Foreign Agriculture Circular, U. S. Department of Agriculture.

2/ DHI newsletter - October 1960, Dairy Cattle Research Branch, ARS, USDA.

3/ Stichting-Central Milk Controle, Dienst-1958, (official milk control publication).

4/ Survey of the Statistical Results of Danish Milk Recording Societies 1958-59, the National Committee of Danish Milk Recording Societies.

5/ Nation Milk Records, 1957, Milk Marketing Board, Thames Ditton, Surrey, England.

6/ Statistiches Jahrbuchueber Ernsehrung, Landwirtshaft und Forster, 1959, (Statistical yearbook of Nutrition and Forestry - West German Ministry of Agriculture).

7/ Based on official 30,000 cow records for Brown Swiss breed only, Sementhol records not available in this office. The Commission of Swiss Cattle Breeding Association, Bern, Switzerland.

8/ L'Elevage Bovin en Belgique, 1957. Animal Production Service, Belgian Ministry of Agriculture.

The above data indicates that the effectiveness of USA's Dairy Herd Improvement (DHIA) Sire-Proving programs compares very favorable with that of similar programs in foreign countries. Furthermore, the DHIA and Sire-Proving programs in this country are now being greatly improved. It is logical to expect that the effectiveness of the improved programs to increase the producing efficiency of dairy herds will be further increased in the future.

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National Cooperative Dairy Herd Improvement Program
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AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-89
(Vol. 37, No. 1)

Dairy-Herd-Improvement Letter

January 1961

886, 495 LACTATION RECORDS REPORTED DURING 1960

During 1960, 886, 495 lactation records were reported to the Dairy Cattle Research Branch for use in proving DHIA sires. Of these, DHIA supervisors reported 838, 894, and various Breed Associations reported 47, 601 Herd Test records. The number of Herd Test records reported by the various associations is as follows:

	Herd Test records reported
	(number)
American Dairy Cattle Club	248
Brown Swiss Cattle Breeders Association	7, 177
American Guernsey Cattle Club	21, 385
American Jersey Cattle Club	18, 791

The number of lactation records reported each year, since 1946 is shown below:

Year	Lactation records reported	Year	Lactation records reported
	(number)		(number)
1946	183, 884	1953	501, 582
1947	250, 811	1954	667, 074
1948	285, 083	1955	636, 293
1949	391, 067	1956	658, 086
1950	471, 721	1957	565, 360
1951	540, 953	1958	786, 496
1952	485, 949	1959	927, 998
		1960	886, 495

The 886, 495 records reported during 1960 represent approximately 51 percent of the 1, 746, 752 cows on standard test at the beginning of the year.

Issued March 1961

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PRODUCTION RECORDS REPORTED TO THE DAIRY CATTLE RESEARCH BRANCH BY STATE EXTENSION SERVICES, FOR THE PERMANENT FILES DURING 1959 and 1960

State	1960											1959	
	Cows on test in all association herds on January 1	Production records reported 1/			Herd Test Records Reported by --				Total records reported		Records returned 3/	Production records reported 2/	
		718's	1095's	Total	American Dairy Cattle Club	Brown Swiss Cattle Breeders' Association	American Guernsey Cattle Club	American Jersey Cattle Club					
	Number	Number	Number	Number	Number	Number	Number	Number	Number	Pct.	Number	Number	Pct.
Maine	20,980	8,314	5,952	14,266	-	-	165	180	14,611	69.6	849	14,438	74.9
N. H	11,742	3,607	3,741	7,348	-	-	177	153	7,678	65.4	548	6,807	62.4
Vt	45,462	11,134	11,315	22,449	-	124	183	820	23,576	51.9	1,509	26,859	60.3
Mass	22,100	2,856	14,432	17,288	37	301	337	535	18,498	83.7	1,167	18,630	88.3
R. I	2,764	74	1,132	1,206	-	-	127	197	1,530	55.4	106	1,455	52.1
Conn	22,035	5,452	11,830	17,282	-	299	889	-	18,470	83.8	1,404	16,341	74.5
N. Y	151,049	-	113,437	113,437	83	337	1,281	1,109	116,247	77.0	18,508	179,978	126.4
Pa	139,606	2	122,946	122,948	-	193	791	310	124,242	89.0	2,945	151,683	125.2
N. J	27,516	6,867	6,717	13,584	-	206	945	249	14,984	54.5	778	13,308	51.9
Md	44,181	11,681	14,774	26,455	-	223	553	347	27,578	62.4	1,114	37,153	91.2
Del	3,595	-	3,424	3,424	-	6	108	-	3,538	98.4	258	3,592	105.1
Va	50,961	19,253	12,930	32,183	-	77	1,005	241	33,506	65.7	1,074	43,757	78.7
W. Va	8,736	2,214	2,001	4,215	-	20	23	142	4,400	50.4	189	5,840	74.5
Ky	17,348	4,854	1,384	6,238	-	125	191	457	7,011	40.4	325	4,407	34.0
N. C	32,084	4,472	15,595	20,067	-	-	1,020	478	21,565	67.2	486	17,022	65.7
S. C	10,557	603	5,545	6,148	-	108	717	-	6,973	66.1	191	3,800	45.1
Ga	19,715	3,237	2,081	5,318	-	19	260	382	5,979	30.3	178	4,693	30.9
Fla	21,620	4,774	1,099	5,873	-	10	825	442	7,150	33.1	137	5,594	26.7
Ala	17,803	1,427	7,148	8,577	-	-	58	350	8,983	50.5	177	6,330	40.6
Miss	7,678	930	1,154	2,084	-	9	313	344	2,750	35.8	31	1,911	30.7
Tenn	16,283	43	222	265	-	-	426	1,121	1,812	11.1	-	3,067	23.6
La	3,966	645	30	675	-	-	208	228	1,111	28.0	3	865	25.3
Ark	1,918	63	916	979	-	11	73	171	1,234	64.3	13	409	38.5
Ohio	60,137	24,408	2,397	26,805	12	1,130	2,392	2,390	32,729	54.4	1,102	28,618	51.2
Ind	35,789	18,508	-	18,508	48	305	1,075	674	20,610	57.6	199	12,958	36.9
Ill	58,272	18,488	20,810	39,298	-	712	882	571	41,463	71.2	1,488	35,832	64.2
Mich	60,851	-	63,204	63,204	-	456	696	641	64,997	106.8	2,244	57,958	105.6
Wis	98,986	-	44,974	44,974	68	736	337	372	46,487	47.0	2,117	38,903	41.1
Minn	107,188	41,951	11,634	53,585	-	139	422	218	54,364	50.7	2,418	56,827	58.2
Iowa	54,454	17,226	20,884	38,110	-	623	237	537	39,507	72.6	814	33,620	68.2
Mo	21,714	6,856	1,478	8,334	-	153	219	283	8,989	41.4	325	8,697	40.6
N. Dak	5,403	1,627	2,437	4,064	-	59	31	-	4,154	76.9	397	2,606	60.2
S. Dak	5,883	404	1,220	1,624	-	90	34	-	1,748	29.7	31	1,123	19.8
Nebr	13,240	1,170	489	1,659	-	54	347	79	2,139	16.2	157	2,132	18.2
Kans	26,110	9,040	3,958	12,998	-	105	246	134	13,483	51.6	489	12,599	51.4
Okla	7,348	2,729	-	2,729	-	71	286	300	3,386	46.1	160	1,508	21.9
Tex	21,866	3,983	3,136	7,119	-	92	281	1,470	8,962	41.0	130	6,002	35.6
Mont	5,559	886	138	1,024	-	88	66	-	1,178	21.2	11	1,141	21.5
Idaho	25,441	6,491	86	6,577	-	38	307	292	7,214	28.4	140	7,338	32.6
Wyo	1,441	7	90	97	-	-	12	-	109	7.6	5	475	29.2
Nev	3,061	-	6	6	-	-	-	148	154	5.0	-	256	13.0
Utah	16,266	-	2,228	2,228	-	-	124	-	2,352	14.5	85	11,266	79.5
Colo	15,514	755	377	1,132	-	79	87	66	1,364	8.8	69	2,257	16.6
N. Mex	4,055	-	109	109	-	-	252	218	579	14.3	6	1,008	33.0
Ariz	25,951	155	515	670	-	14	44	54	782	3.0	26	2,166	9.2
Wash	43,626	24,214	10,394	34,608	-	2	1,095	420	36,125	82.8	2,518	16,133	35.0
Oreg	28,737	11,407	1,823	13,230	-	70	496	1,180	14,976	52.1	329	15,501	58.7
Calif	295,536	2,366	1,025	3,391	-	93	742	488	4,714	1.6	33	2,957	1.1
P. R	4,422	251	-	251	-	-	-	-	251	5.7	19	87	1.8
Hawaii	203	253	-	253	-	-	-	-	253	124.6	6	91	42.1
Alaska	0	-	-	-	-	-	-	-	-	-	-	-	-
U.S	1,746,752	285,677	553,217	838,894	248	7,177	21,385	18,791	886,495	50.8	47,308	927,998	57.7

1/ Includes cows enrolled since January 1, 1960.
2/ Production records reported on DHIA-718 and DHIA-1095.
3/ Records returned to States because of inconsistent or incomplete data.

NUMBER OF RECORDS PROCESSED IN DHIA COMPUTING CENTERS*
(as reported by State Extension Dairymen, January 1, 1961)

State	DHIA Records		Owner-Sampler	
	No. Herds	No. Cows	No. Herds	No. Cows
Ala	152	12,036	5	294
Ariz	45	4,585	4	305
Ark	50	2,231	6	150
Calif	3	685	-	-
Colo	190	8,658	22	783
Conn	320	15,146	60	1,893
Del	100	3,291	22	541
Fla	18	2,592	-	-
Ga	62	4,381	-	-
Idaho	7	460	-	-
Ill	1,176	39,324	184	4,409
Ind	405	11,647	4	131
Iowa	1,041	33,090	241	5,584
Kans	219	7,725	8	265
Ky	101	3,000	-	-
Me	262	9,143	58	1,588
Md	414	18,817	49	1,653
Mass	402	16,744	53	1,228
Mich	1,994	66,425	1,138	28,870
Minn	464	15,407	165	3,811
Miss	29	1,800	-	-
Mo	54	1,868	2	57
Mont	30	1,627	5	177
Nebr	111	4,500	70	1,940
Nev	3	109	-	-
N. Hamp	151	6,107	29	738
N. Jer	141	6,800	21	1,100
N. Mex	43	3,211	2	128
N. Y	2,363	103,255	1,700	52,145
N. C	478	22,828	13	517
N. Dak	108	3,411	17	389
Ohio	376	11,437	116	2,716
Okla	5	145	-	-
Oreg	131	7,278	23	652
Pa	4,854	156,187	1,261	32,074
R. I	38	1,830	-	-
S. C	161	10,771	1	38
S. Dak	57	1,750	12	283
Tenn	16	771	-	-
Tex	131	8,847	4	167
Utah	478	17,456	28	489
Vt	383	14,891	124	3,916
Va	466	24,503	41	1,188
Wash	191	9,332	13	279
W. Va	76	2,253	-	-
Wis	1,810	56,964	2,965	91,036
Wyo	53	1,097	16	840
Total	20,162	756,415	8,482	242,374

*WADAM Records: Michigan, 68 herds, 1,860 cows; Utah, 13 herds, 247 cows. Total - 81 herds and 2,107 cows.

MAY 1, 1961, DEADLINE FOR REPORTING LACTATION RECORDS

Automated (705-III) sire-proving procedures will be operated beginning this coming May. When the procedures are operated, all sire provings will be brought up to date.

Therefore, all available lactation records should be reported in time to be received in the Branch by May 1 for inclusion in the next sire-proving operation.

Lactation records should be reported on form DHIA-718 as they are completed. DHIA supervisors should keep their 718 reports up to date.

MAY 1, 1961, IS THE DEADLINE FOR 718'S

Growth Through Agricultural Progress

36.23
n 3d

National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA **OWNER SAMPLER** **WEIGH-A-DAY-A-MONTH**
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter
ARS-44-93
(Vol. 37, No. 2)

February 1961

ALL-TIME PEAK IN DAIRY RECORDKEEPING

On January 1, 1961, more herds and cows than ever before were included in the three recordkeeping plans, DHIA, OS, and WADAM, which collectively make up the National Cooperative Dairy Herd Improvement Program. On January 1, 1961, the Program included 69,419 herds and 2,594,201 cows. This number of cows represents 14.8 percent of the milk cows of the nation.

STANDARD DHIA - 1,867,469 cows are included in the Standard Recordkeeping Plan. This is 120,717, or 6.9 percent more cows than were in this plan January 1, 1960.

OWNER-SAMPLER - 655,885 cows are included in the Owner-Sampler Recordkeeping Plan. This is 39,986, or 6.5 percent more than were in the plan January 1, 1960.

WEIGH-A-DAY-A-MONTH - 70,847 cows are included in the WADAM Recordkeeping Plan. This is 5,545, or 7.3 percent less cows than were in the plan January 1, 1960.

Complete data on the status of the National Cooperative Dairy Herd Improvement Program by State, as reported by State Extension Dairymen, are given on the following pages.

1862 1962

Growth Through Agricultural Progress

Issued April 1961

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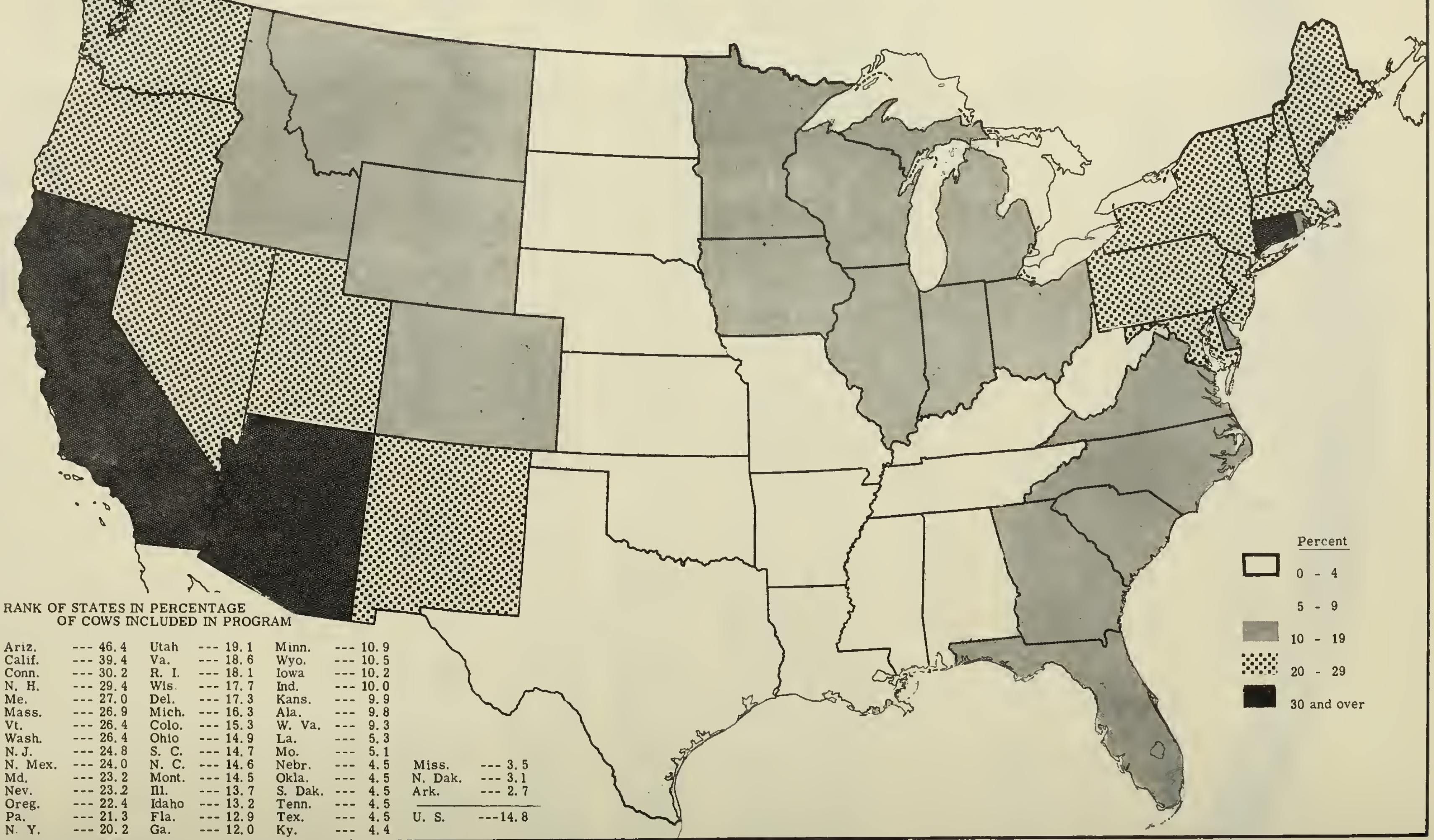
NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM
Percentage of cows in program January 1, 1961



RANK OF STATES IN PERCENTAGE OF COWS INCLUDED IN PROGRAM

Ariz.	--- 46.4	Utah	--- 19.1	Minn.	--- 10.9		
Calif.	--- 39.4	Va.	--- 18.6	Wyo.	--- 10.5		
Conn.	--- 30.2	R. I.	--- 18.1	Iowa	--- 10.2		
N. H.	--- 29.4	Wis.	--- 17.7	Ind.	--- 10.0		
Me.	--- 27.0	Del.	--- 17.3	Kans.	--- 9.9		
Mass.	--- 26.9	Mich.	--- 16.3	Ala.	--- 9.8		
Vt.	--- 26.4	Colo.	--- 15.3	W. Va.	--- 9.3		
Wash.	--- 26.4	Ohio	--- 14.9	La.	--- 5.3		
N. J.	--- 24.8	S. C.	--- 14.7	Mo.	--- 5.1		
N. Mex.	--- 24.0	N. C.	--- 14.6	Nebr.	--- 4.5	Miss.	--- 3.5
Md.	--- 23.2	Mont.	--- 14.5	Okla.	--- 4.5	N. Dak.	--- 3.1
Nev.	--- 23.2	Ill.	--- 13.7	S. Dak.	--- 4.5	Ark.	--- 2.7
Oreg.	--- 22.4	Idaho	--- 13.2	Tenn.	--- 4.5		
Pa.	--- 21.3	Fla.	--- 12.9	Tex.	--- 4.5	U. S.	---14.8
N. Y.	--- 20.2	Ga.	--- 12.0	Ky.	--- 4.4		

DAIRY HERD IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES
(Active January 1, 1961)

State	Associations	Supervisors	Herds	Cows	Average cows per herd	Average per Supervisor		Milk cows in United States 1/	
						Herds	Cows	Total	in DHIA's
	Number	Number	Number	Number	Number	Number	Number	Thousands	Percent
Me	16	34	644	22,060	34.3	18.9	649	95	23.2
N. H	10	21	325	12,240	37.7	15.5	583	51	24.0
Vt	16	71	1,125	47,792	42.5	15.8	673	258	18.5
Mass	12	27	546	22,795	41.7	20.2	844	94	24.3
R. I	2	2	57	2,709	47.5	28.5	1,355	15	18.1
Conn	8	25	534	24,734	46.3	21.4	989	89	27.8
N. Y	49	207	3,912	157,305	40.2	18.9	760	1,248	12.6
Pa	59	202	4,854	156,187	32.2	24.0	773	884	17.7
N. J	10	29	575	28,235	49.1	19.8	974	132	21.4
Md	18	44	977	46,433	47.5	22.2	1,055	217	21.4
Del	3	5	122	3,832	31.4	24.4	766	27	14.2
Va	62	65	1,167	60,015	51.4	18.0	923	340	17.7
W. Va	14	20	252	9,166	36.4	12.6	458	130	7.1
Ky	45	49	523	17,331	33.1	10.7	354	501	3.5
N. C	46	51	729	34,915	47.9	14.3	685	275	12.7
S. C	18	16	208	13,850	66.6	13.0	866	109	12.7
Ga	25	27	355	22,451	63.2	13.1	832	212	10.6
Fla	10	11	124	21,413	172.7	11.3	1,947	195	11.0
Ala	21	19	262	20,077	76.6	13.8	1,057	244	8.2
Miss	13	11	140	8,679	62.0	12.7	789	366	2.4
Tenn	33	34	506	19,384	38.3	14.9	570	486	4.0
La	9	9	70	4,455	63.6	7.8	495	232	1.9
Ark	7	9	65	2,845	43.8	7.2	316	214	1.3
Ohio	80	154	2,510	66,656	26.6	16.3	433	692	9.6
Ind	66	90	1,212	39,237	32.4	13.5	436	431	9.1
Ill	64	95	1,725	58,090	33.7	18.2	611	561	10.4
Mich	78	114	1,994	66,425	33.3	17.5	583	641	10.4
Wis	64	133	2,705	100,325	37.1	20.3	754	2,163	4.6
Minn	73	192	3,867	114,094	29.5	20.1	594	1,265	9.0
Iowa	71	105	1,899	57,146	30.1	18.2	544	851	6.7
Mo	50	53	694	25,965	37.4	13.1	490	658	3.9
N. Dak	14	16	190	5,921	31.2	11.9	370	272	2.2
S. Dak	15	19	204	6,495	31.8	10.7	342	248	2.6
Nebr	27	31	323	12,010	37.2	10.4	387	327	3.7
Kans	47	55	813	29,024	35.7	14.8	528	330	8.8
Okla	20	19	170	7,930	46.6	8.9	417	256	3.1
Tex	28	34	375	24,850	66.3	11.0	731	575	4.3
Mont	8	9	126	5,697	45.2	14.0	633	79	7.2
Idaho	36	39	824	26,193	31.8	21.1	672	202	13.0
Wyo	5	5	56	1,937	34.6	11.2	387	31	6.2
Nev	5	5	47	3,477	74.0	9.4	695	16	21.7
Utah	20	25	478	17,456	36.5	19.1	698	95	18.4
Colo	20	28	340	17,464	51.4	12.1	624	125	14.0
N. Mex	6	9	58	4,992	86.1	6.4	555	42	11.9
Ariz	4	13	174	21,002	120.7	13.4	1,616	50	42.0
Wash	24	46	974	48,224	49.5	21.2	1,048	233	20.7
Oreg	23	31	563	29,696	52.7	18.2	958	162	18.3
Calif	33	132	2,130	313,615	147.2	16.1	2,376	830	37.8
Hawaii	4	4	4	138	34.5	1.0	35	(2)	1.1
Alaska	0	0	0	0	-	-	-	-	-
P. R	4	4	31	4,507	145.4	7.8	1,127	-	-
Total or average	1,395	2,448	42,558	1,867,469	43.9	17.4	763	17,549	10.6

1/ Estimated by the Agricultural Marketing Service; number of milk cows on farms during year excluding heifers not yet fresh.

2/ 12,940; estimated by the University of Hawaii.

GROWTH OF DAIRY-HERD-IMPROVEMENT ASSOCIATION WORK IN THE UNITED STATES
(1906-1961 inclusive)

Year	Associations	Supervisors	Herds on test	Cows on test	Average cows per herd	Average production of cows on test		
						Milk	Test	Butterfat
	Number	Number	Number	Number	Number	Pounds	Percent	Pounds
1906---	1	----	31	239	7.7	5,300	4.1	215
1907---	4	----	----	1,606	---	5,366	4.1	220
1908---	6	----	----	3,921	---	-----	---	---
1909---	25	----	----	11,921	---	-----	---	---
1910---	40	----	----	1/ 25,000	---	1/ 5,730	4.0	1/ 227
1911---	64	----	----	1/ 40,000	---	-----	---	---
1912---	82	----	----	1/ 43,000	---	-----	---	---
1913---	100	----	----	47,150	---	-----	---	---
1914---	163	----	----	73,280	---	-----	---	---
1915---	211	----	----	105,526	---	-----	---	---
1916---	346	----	----	150,677	---	-----	---	---
1917---	459	----	11,720	216,831	18.5	-----	---	---
1918---	353	----	9,778	172,518	17.6	-----	---	---
1919---	385	----	10,000	167,313	16.7	-----	---	---
1920---	468	----	11,948	203,472	17.0	6,175	4.0	247
1921---	452	----	11,209	193,928	17.3	-----	---	---
1922---	513	----	12,508	215,321	17.2	-----	---	---
1923---	627	----	16,357	277,010	16.9	-----	---	---
1924 2/	---	----	----	-----	---	-----	---	---
1925---	732	----	18,677	307,073	16.4	7,189	4.0	284
1926---	777	----	19,540	327,653	16.8	7,331	4.0	290
1927---	837	----	21,128	362,014	17.1	7,411	4.0	293
1928---	947	----	23,327	414,891	17.8	7,476	4.0	296
1929---	1,090	----	26,182	465,804	17.8	7,498	4.0	298
1930---	1,143	----	27,888	507,549	18.2	7,642	4.0	303
1931---	1,112	----	26,308	510,714	19.4	7,812	3.9	306
1932---	1,005	----	20,351	427,044	21.0	7,858	3.9	310
1933---	881	----	15,447	358,501	23.2	7,849	4.0	313
1934---	793	----	13,694	325,837	23.8	8,015	4.0	322
1935---	809	----	15,573	364,218	23.4	7,977	4.0	322
1936---	876	----	17,344	404,412	23.3	7,912	4.0	319
1937---	992	----	20,772	496,562	23.9	7,923	4.0	320
1938---	1,106	----	23,701	558,993	23.6	7,831	4.0	317
1939---	1,228	----	25,949	625,284	24.1	7,977	4.1	323
1940---	1,300	----	27,948	676,141	24.2	8,133	4.1	331
1941---	1,383	----	31,381	763,502	24.3	8,225	4.1	335
1942---	1,421	----	32,957	816,117	24.8	8,323	4.1	339
1943---	1,057	----	24,155	616,972	25.5	8,325	4.1	338
1944---	954	----	20,825	561,587	27.0	8,296	4.1	336
1945---	949	----	21,254	577,200	27.2	8,592	4.0	346
1946---	1,124	----	23,331	627,878	27.0	8,635	4.0	349
1947---	1,426	----	28,812	775,546	26.9	8,638	4.0	348
1948---	1,668	----	33,274	886,129	26.6	8,675	4.0	350
1949---	1,787	----	35,851	943,939	26.3	8,907	4.0	359
1950---	1,973	----	40,100	1,088,872	27.2	9,172	4.0	370
1951---	2,143	----	42,949	1,186,615	27.6	9,195	4.0	370
1952---	2,109	----	40,105	1,166,297	29.1	9,192	4.0	366
1953---	2,151	----	40,983	1,226,588	29.9	9,253	4.0	368
1954---	2,175	----	41,254	1,311,698	31.8	9,363	4.0	372
1955---	2,288	----	41,240	1,333,866	32.3	9,502	3.9	375
1956---	2,266	----	40,984	1,406,306	34.4	9,713	3.9	383
1957 3/	1,700	2,310	41,638	1,479,799	35.5	9,894	3.9	389
1958---	1,544	2,293	39,985	1,548,884	38.7	10,068	3.9	394
1959---	1,500	2,337	40,284	1,607,538	39.9	10,327	3.9	401
1960---	1,509	2,397	41,293	1,746,752	42.3	------	---	---
1961---	1,395	2,448	42,558	1,867,469	43.9	------	---	---

1/ Estimated.
2/ Date for collecting data changed in 1924 from July 1 to January 1.
3/ Prior to 1957 associations were counted on the basis of supervisor circuits.

OWNER-SAMPLER DAIRY RECORDKEEPING IN THE UNITED STATES
(January 1, 1961)

State	Counties	Herds	Cows	Milk cows in United States 1/	
				Total	in O-S
	Number	Number	Number	Thousands	Percent
Me	10	134	3,516	95	3.7
N. H	8	92	2,416	51	4.7
Vt	13	628	20,300	258	7.9
Mass	11	112	2,451	94	2.6
R. I	1	1	9	15	.1
Conn	8	105	2,104	89	2.4
N. Y	49	3,263	94,841	1,248	7.6
Pa	60	1,261	32,074	884	3.6
N. J	8	128	4,361	132	3.3
Md	11	117	3,897	217	1.8
Del	3	22	541	27	2.0
Va	17	87	2,517	340	.7
W. Va	4	12	474	130	.4
Ky	1	1	30	501	(2)
N. C	16	34	1,084	275	.4
S. C	1	1	38	109	(2)
Ga	2	2	65	212	(2)
Fla	2	3	407	195	.2
Ala	1	5	294	244	.1
Miss	-	-	-	366	0
Tenn	2	3	73	486	(2)
La	-	-	-	232	0
Ark	5	6	150	214	.1
Ohio	80	1,705	35,708	692	5.2
Ind	19	168	3,980	431	.9
Ill	35	458	11,358	561	2.0
Mich	66	1,446	36,339	641	5.7
Wis	67	10,404	283,510	2,163	13.1
Minn	57	984	23,475	1,265	1.9
Iowa	94	1,407	29,699	851	3.5
Mo	24	78	1,846	658	.3
N. Dak	21	49	749	272	.3
S. Dak	31	241	4,637	248	1.9
Nebr	27	80	2,200	327	.7
Kans	19	98	2,547	330	.8
Okla	8	55	1,280	256	.5
Tex	4	7	266	575	(2)
Mont	4	132	5,779	79	7.3
Idaho	4	12	287	202	.1
Wyo	5	22	1,320	31	4.3
Nev	1	4	37	16	.2
Utah	10	28	489	95	.5
Colo	14	48	1,444	125	1.2
N. Mex	6	41	3,470	42	8.3
Ariz	2	13	2,202	50	4.4
Wash	18	470	13,163	233	5.6
Oreg	23	190	5,400	162	3.3
Calif	26	341	13,058	830	1.6
Hawaii	-	-	-	-	-
Alaska	-	-	-	-	-
P. R	-	-	-	-	-
Total	898	24,498	655,885	17,549	3.7

1/ Estimated by the Agricultural Marketing Service; number of milk cows on farms during year excluding heifers not yet fresh.

2/ Less than one-tenth of one percent.

WEIGH-A-DAY-A-MONTH DAIRY RECORDKEEPING IN THE UNITED STATES
(January 1, 1961)

State	Counties	Herds	Cows	Milk cows in United States 1/	
				Total	in WADAM
	Number	Number	Number	Thousands	Percent
Me	2	6	118	95	.1
N. H	2	10	359	51	.7
Vt	0	0	0	258	0
Mass	1	1	70	94	.1
R. I	0	0	0	15	0
Conn	1	1	47	89	.1
N. Y	0	0	0	1,248	0
Pa	0	0	0	884	0
N. J	2	3	117	132	.1
Md	1	2	30	217	(2)
Del	1	10	300	27	1.1
Va	11	27	667	340	.2
W. Va	27	123	2,463	130	1.9
Ky	48	200	4,500	501	.9
N. C	27	128	4,036	275	1.5
S. C	13	59	2,181	109	2.0
Ga	16	53	2,998	212	1.4
Fla	9	17	3,429	195	1.8
Ala	29	79	3,437	244	1.4
Miss	14	108	4,300	366	1.2
Tenn	30	108	2,510	486	.5
La	27	151	7,853	232	3.4
Ark	23	105	2,779	214	1.3
Ohio	1	18	508	692	.1
Ind	0	0	0	431	0
Ill	45	316	7,363	561	1.3
Mich	26	68	1,860	641	.3
Wis	0	0	0	2,163	0
Minn	4	4	99	1,265	(2)
Iowa	5	40	375	851	(2)
Mo	51	226	5,769	658	.9
N. Dak	19	156	1,783	272	.7
S. Dak	0	0	0	248	0
Nebr	6	18	380	327	.1
Kans	10	50	1,012	330	.3
Okla	18	58	2,311	256	.9
Tex	8	17	980	575	.2
Mont	0	0	0	79	0
Idaho	4	16	258	202	.1
Wyo	0	0	0	31	0
Nev	1	4	200	16	1.3
Utah	5	13	247	95	.3
Colo	2	8	220	125	.2
N. Mex	9	27	1,613	42	3.8
Ariz	0	0	0	50	0
Wash	1	1	34	233	(2)
Oreg	20	100	1,200	162	.7
Calif	1	4	230	830	(2)
Hawaii	4	5	200	-	0
Alaska	1	10	300	-	0
P. R	7	13	1,711	-	0
Total	532	2,363	70,847	17,549	.4

1/ Estimated by the Agricultural Marketing Service; number of milk cows on farms during year excluding heifers not yet fresh.

2/ Less than one-tenth of one percent.

THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM
(January 1, 1961)

State	Standard DHIA		Owner-Sampler		Weigh-a-Day-a-Month		Total		Milk cows in U.S.	
	Herds	Cows	Herds	Cows	Herds	Cows	Herds	Cows	Total 1/	In all plans 2/
	Number	Number	Number	Number	Number	Number	Number	Number	Thousands	Percent
Me	644	22,060	134	3,516	6	118	784	25,694	95	27.0
N. H	325	12,240	92	2,416	10	359	427	15,015	51	29.4
Vt	1,125	47,792	628	20,300	-	-	1,753	68,092	258	26.4
Mass	546	22,795	112	2,451	1	70	659	25,316	94	26.9
R. I	57	2,709	1	9	-	-	58	2,718	15	18.1
Conn	534	24,734	105	2,104	1	47	640	26,885	89	30.2
N. Y	3,912	157,305	3,263	94,841	-	-	7,175	252,146	1,248	20.2
Pa	4,854	156,187	1,261	32,074	-	-	6,115	188,261	884	21.3
N. J	575	28,235	128	4,361	3	117	706	32,713	132	24.8
Md	977	46,433	117	3,897	2	30	1,096	50,360	217	23.2
Del	122	3,832	22	541	10	300	154	4,673	27	17.3
Va	1,167	60,015	87	2,517	27	667	1,281	63,199	340	18.6
W. Va	252	9,166	12	474	123	2,463	387	12,103	130	9.3
Ky	523	17,331	1	30	200	4,500	724	21,861	501	4.4
N. C	729	34,915	34	1,084	128	4,036	891	40,035	275	14.6
S. C	208	13,850	1	38	59	2,181	268	16,069	109	14.7
Ga	355	22,451	2	65	53	2,998	410	25,514	212	12.0
Fla	124	21,413	3	407	17	3,429	144	25,249	195	12.9
Ala	262	20,077	5	294	79	3,437	346	23,808	244	9.8
Miss	140	8,679	-	-	108	4,300	248	12,979	366	3.5
Tenn	506	19,384	3	73	108	2,510	617	21,967	486	4.5
La	70	4,455	-	-	151	7,853	221	12,308	232	5.3
Ark	65	2,845	6	150	105	2,779	176	5,774	214	2.7
Ohio	2,510	66,656	1,705	35,708	18	508	4,233	102,872	692	14.9
Ind	1,212	39,237	168	3,980	-	-	1,380	43,217	431	10.0
Ill	1,725	58,090	458	11,358	316	7,363	2,499	76,811	561	13.7
Mich	1,994	66,425	1,446	36,339	68	1,860	3,508	104,624	641	16.3
Wis	2,705	100,325	10,404	283,510	-	-	13,109	383,835	2,163	17.7
Minn	3,867	114,094	984	23,475	4	99	4,855	137,668	1,265	10.9
Iowa	1,899	57,146	1,407	29,699	40	375	3,346	87,220	851	10.2
Mo	694	25,965	78	1,846	226	5,769	998	33,580	658	5.1
N. Dak	190	5,921	49	749	156	1,783	395	8,453	272	3.1
S. Dak	204	6,495	241	4,637	-	-	445	11,132	248	4.5
Nebr	323	12,010	80	2,200	18	380	421	14,590	327	4.5
Kans	813	29,024	98	2,547	50	1,012	961	32,583	330	9.9
Okla	170	7,930	55	1,280	58	2,311	283	11,521	256	4.5
Tex	375	24,850	7	266	17	980	399	26,096	575	4.5
Mont	126	5,697	132	5,779	-	-	258	11,476	79	14.5
Idaho	824	26,193	12	287	16	258	852	26,738	202	13.2
Wyo	56	1,937	22	1,320	-	-	78	3,257	31	10.5
Nev	47	3,477	4	37	4	200	55	3,714	16	23.2
Utah	478	17,456	28	489	13	247	519	18,192	95	19.1
Colo	340	17,464	48	1,444	8	220	396	19,128	125	15.3
N. Mex	58	4,992	41	3,470	27	1,613	126	10,075	42	24.0
Ariz	174	21,002	13	2,202	-	-	187	23,204	50	46.4
Wash	974	48,224	470	13,163	1	34	1,445	61,421	233	26.4
Oreg	563	29,696	190	5,400	100	1,200	853	36,296	162	22.4
Calif	2,130	313,615	341	13,058	4	230	2,475	326,903	830	39.4
Hawaii	4	138	-	-	5	200	9	338	-	-
Alaska	-	-	-	-	10	300	10	300	-	-
P. R	31	4,507	-	-	13	1,711	44	6,218	-	-
Total or average	42,558	1,867,469	24,498	655,885	2,363	70,847	69,419	2,594,201	17,549	14.8

1/ Estimated by the Agricultural Marketing Service; number of milk cows on farms during year excluding heifers not yet fresh.

2/ Percentage of cows included in the National Cooperative Dairy Herd Improvement Program.

COUNTIES, BY STATE, WITH 20% OR MORE COWS INCLUDED IN THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM

(January 1, 1961)

State	County (Name)	Cows (%)
ALABAMA	Escambia	26
	Montgomery	22
	Russell	21
	Elmore	20
ARIZONA	Pima	106
	Pinal	80
	Maricopa	58
	Greenlee	54
	Graham	46
	Cochise	25
CALIFORNIA	Lassen	69
	Santa Barbara	62
	Marin	61
	Santa Clara	60
	Napa	58
	San Diego	58
	Monterey	57
	San Joaquin	57
	Sonoma	57
	Fresno	56
	Kern	55
	Madera	52
	Stanislaus	51
	Tulare	46
	Shasta	43
	San Bernardino	42
	Los Angeles	41
	Merced	41
	Santa Cruz	40
	Del Norte	39
	Sacramento	38
	San Luis Obispo	37
	Tehama	37
	Butte	31
	Placer-Nevada	31
	Solano-Yolo	29
	Alameda	28
	Humboldt	28
	Orange	28
	Riverside	25
	Glenn	24
	Kings	24
	Mendocino-Lake	23
COLORADO	Pueblo	35
	Boulder	29
	Fremont	28
	Jefferson	28
	Custer	27
	Weld	26
	Larimer	25
	Huerfano	22
CONNECTICUT	Litchfield	42
	Hartford	36
	Windham	31
	New Haven	30
	Middlesex	29
	Tolland	25
	New London	24
DELAWARE	Sussex County	26
FLORIDA	Putnam	70
	Seminole	66
	Leon	58
	Sarasota	52
	Manatee	47
	Orange	47
	Osceola	39
	Volusia	38
	Gilchrist	37
	Glades	35
	Jefferson	35
	Lafayette	30
	Lee	27
	Washington	25
	Jackson	24
	Duval	22
	Calhoun	21
	Dade	20
GEORGIA	Houston	90
	McIntosh	90
	Macon	87
	Jones	65
	Peach	55
	Newton	50
	Jenkins	46
	Montgomery	46
	Walton	46
	Jasper	45
	Baldwin	43
	Douglas	43
	Spalding	43
	Lee	39
	Morgan	37
	Jefferson	36
	Rockdale	35
	Butts	33
	Clarke	33
	Appling	27
	Monroe	27
	Brooks	26
	Henry	26
	Twiggs	26
	Lowndes	25
	Mitchell	22
HAWAII	Kona	100
	Maui	22
ILLINOIS	Kendall	46
	Christian	41
	Grundy	31
	Lake	31
	Macon	30
	Moultrie	30
	Kankakee	27
	Logan	26
	Jackson	24
	Champaign	23
	Carroll	22
	Du Page	22
	Jasper	22
	Tazewell	22
	De Kalb	21
	Iroquois	21
	Bond	20
	Effingham	20
INDIANA	Clark	48
	La Porte	33
	Delaware	28
	Boone	23
	Grant	23
	Elkhart	21
	Park	21
IOWA	Cerro Gordo	27
	Sac	26
	Scott	25
	Franklin	24
	Lee	23
	Story	23
	Polk	20
KANSAS	Saline	30
	Kiowa-Comanche	27
	Geary	26
	Reno	24
	Harvey	23
LOUISIANA	Rapides	51
	Madison	35
	Beauregard	27
	Lafayette	23
	Richland	23
MAINE	Androscoggin	42
	Oxford	39
	Cumberland	38
	York	31
	Penobscot	30
	Somerset	29
	Waldo	28
	Knox-Lincoln	27
	Aroostook	24
	Kennebec	24
MARYLAND	Howard	55
	Montgomery	45
	Potomac Valley	38
	Harford	34
	Kent	33
	Baltimore	32
	Anne Arundel	29
	Cecil	28
	Marva	27
	Dorchester	26
	Carroll	24
	Frederick	21
MASSACHUSETTS	Barnstable	45
	Dukes	38
	Berkshire	34
	Essex	29
	Hampshire	29
	Plymouth	28
	Worcester	24
	Franklin	23
	Middlesex	23
	Norfolk	23
MICHIGAN	Ingham	35
	Barry	31
	Jackson	28
	Eaton	26
	Lenawee	26
	Berrien	25
	Kalamazoo	25
	Washtenaw	25
	Monroe	24
	St. Joseph	24
	Calhoun	23
	Livingston	22
	Mason	22
	Baraga	21
	Lapeer	21
	Muskegon	21
MINNESOTA	Dakota	32
	Hennepin	27
	Winona	26
	Washington	25
	Goodhue	24
	McLeod	23
	Olmsted	22
	Rice	21
	Faribault	20
	Watonwan	20

COUNTIES, BY STATE, WITH 20% OR MORE COWS INCLUDED IN THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM (con't.)

(January 1, 1961)

State	County (Name)	Cows (%)
NEBRASKA	Lancaster	20
	Scottsbluff	20
NEVADA	Douglas	64
	Lincoln	40
	Churchill	30
NEW HAMPSHIRE	Sullivan	42
	Cheshire	40
	Hillsboro	40
	Grafton	31
	Merrimack	31
	Belknap	29
	Coos	29
	Rockingham	23
	Strafford	23
NEW JERSEY	Burlington	31
	Hunterdon	30
	Sussex	30
	Somerset	28
	Morris	27
	Gloucester	25
	Warren	22
	Cumberland-Salem	21
NEW MEXICO	De Baca	69
	Dona Ana	63
	Valencia	53
	Bernalillo	38
	Sierra	38
	Santa Fe	37
	Eddy	32
	Curry	28
	San Miguel	25
NEW YORK	Suffolk	58
	Ontario	46
	Dutchess	45
	Genesee	41
	Wayne	39
	Columbia	36
	Orleans	32
	Tompkins	32
	Schoharie	31
	Schuyler	31
	Onondaga	30
	Seneca	30
	Wyoming	30
	Livingston	28
	Chautauqua	27
	Chemung	27
	Chenango	27
	Cortland	27
	Delaware	26
	Monroe	24
	Cayuga	22
	Erie	22
	Ulster	22
	Rensselaer	21
	Allegany	20
	Madison	20
	Montgomery	20
	Tioga	20
OHIO	Lorain	34
	Medina	31
	Champaign	30
	Holmes	30
	Marion	27
	Auglaize	26
	Greene	25
	Ashland	23
	Clark	23
	Fairfield	22
	Logan	22
	Shelby	21
	Allen	20
OREGON	Washington	34
	Marion	28
	Clatsop	26
	Clackamas	23
	Josephine	23
	Lane	23
	Multnomah	23
	Tillamook	23
PENNSYLVANIA	Clinton	42
	Montgomery	40
	Union	39
	Allegheny	38
	Dauphin	38
	Blair	37
	Bucks	35
	Huntingdon	35
	Perry	34
	Cumberland	32
	Montour	31
	Centre	30
	Luzerne	29
	Sullivan	29
	McKean	27
	Mifflin	27
	Northumberland	27
	Schuylkill	27
	Wyoming	27
	Chester-Delaware	26
	Lehigh, Carbon & Monroe	26
	Columbia	25
	Northampton	25
	Berks	24
	Lebanon	24
	Bradford	23
	Lancaster	23
	Potter	23
	Bedford	22
	Wayne	22
	York	22
	Elk	21
	Franklin	21
	Fulton	21
	Juniata	21
	Lycoming	21
	Susquehanna	21
	Tioga	21
	Venango	20
RHODE ISLAND	Kent	44
	Washington	28
	Newport	22
SOUTH CAROLINA	Bamberg	44
	Calhoun	42
	Saluda	42
	Beaufort	40
	Sumter	36
	Marlboro	34
	Orangeburg	27
	Greenville	23
	Kershaw	23
	Chester	22
	Jasper	22
SOUTH DAKOTA	Custer	28
	Lawrence	25
	Pennington	22
	Fall River	21
UTAH	Wasatch	44
	Salt Lake	37
	Summit	37
	Davis	36
	Morgan	34
	Utah	30
	Washington	21
	Tooels	20
VERMONT	Windham	44
	Windsor	39
	Bennington	35
	Rutland	32
	Washington	31
	Orange	30
	Addison	29
	Franklin	26
	Chittenden	25
	Lamoille	24
	Caledonia	20
VIRGINIA	Princess Anne	53
	Fairfax	34
	Loudoun	27
	Norfolk	26
	James City	25
	Culpeper	24
	Northampton	23
	Dinwiddie	22
	Nottoway	22
	Amelia	21
	Middlesex	21
	King William	20
WASHINGTON	Jefferson	65
	Walla Walla	61
	Grays Harbor	46
	Kittitas	42
	Snohomish	42
	Wahkiakum	42
	Skagit-Island	41
	Chelan	39
	Clallam	38
	Spokane	38
	Thurston-Mason	36
	Grant	33
	Pierce	31
	Kitsap	30
	King	26
	Franklin	25
	Clark-Cowlitz	22
WISCONSIN	(no report)	

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA OWNER SAMPLER WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-97
Dairy-Herd-Improvement Letter (Vol. 37, No. 3)

MARCH 1961

INCREASED NUMBER OF NATION'S DAIRY COWS BEING BRED ARTIFICIALLY

During 1960, 7, 144, 679 dairy cows, or 37.0 percent of the cows and heifers that were 2 years old and over kept for milk were bred artificially. This is 212, 385, or 3.1 percent, more cows than those bred artificially in 1959.

Wisconsin continued to lead the States in number of cows bred artificially, with 1, 295, 692 cows bred in 1960. States in which more than 250,000 cows were bred artificially in 1960 are as follows:

State	Number cows bred artificially	State	Number cows bred artificially
Wisconsin	1, 295, 692	California	347, 859
New York	638, 371	Iowa	337, 243
Minnesota	608, 292	Michigan	330, 106
Pennsylvania	559, 961	Illinois	259, 976
Ohio	376, 626		

In 19 States more than 40 percent of the cows were bred artificially in 1960. They are:

State	Percent	State	Percent
Washington	59.8	Idaho	49.7
Maine	57.0	Oregon	49.5
Pennsylvania	56.7	Michigan	47.6
Connecticut	56.2	New York	45.8
Utah	55.5	Rhode Island	43.8
New Jersey	55.3	Vermont	43.7
Wisconsin	53.4	Florida	43.2
New Hampshire	53.1	Minnesota	43.2
Massachusetts	50.6	Illinois	42.2
Ohio	49.8		

On the following pages are data showing the status of the artificial breeding program for the various States.

Issued May 1961

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UNIVERSITY OF ILLINOIS

STATUS OF ARTIFICIAL-BREEDING PROGRAM IN THE UNITED STATES 1939-61

Year	Studs	Sires in service			Herds	Cows bred		Proved sires in service				
									Dams		Daughters	
		Total	Proved	Average per stud		Total	Average per sire	Total	Milk	Fat	Milk	Fat
	Number	Number	Pct.	Number	Number	Number	Number	Number	Pounds	Pounds	Pounds	Pounds
1939	7	33	-	4.7	646	1/ 7,359	228	-	-	-	-	-
1940	25	138	-	5.5	2,971	1/ 33,977	246	-	-	-	-	-
1941	35	237	-	6.8	5,997	1/ 70,751	299	-	-	-	-	-
1942	46	412	-	9.0	12,118	1/ 112,788	274	-	-	-	-	-
1943	59	574	23.5	9.7	23,448	1/ 182,524	318	135	9,559	387	10,155	419
1944	56	657	19.6	11.7	28,627	1/ 218,070	332	129	9,965	391	10,490	421
1945	67	729	20.2	10.9	43,998	1/ 360,732	495	147	9,629	387	10,488	428
1946	78	900	23.2	11.5	73,293	537,376	597	209	10,270	401	10,741	428
1947	84	1,453	23.1	17.3	140,571	1,184,168	815	335	10,099	405	10,580	430
1948	91	1,745	24.4	19.2	224,493	1,713,581	982	426	10,161	407	10,576	433
1949	90	1,940	26.5	21.6	316,177	2,091,175	1,078	514	10,157	412	10,499	436
1950	97	2,104	26.6	21.7	2/ 409,300	2,619,555	1,245	559	10,236	415	10,734	444
1951	94	2,187	29.0	23.3	2/ 548,300	3,509,573	1,605	634	10,267	419	11,009	459
1952	94	2,324	29.6	24.7	2/ 671,100	4,295,243	1,848	688	10,310	422	11,210	471
1953	96	2,598	36.7	27.1	2/ 755,000	4,845,222	1,865	953	10,375	429	11,176	473
1954	93	2,661	36.1	28.6	2/ 805,000	5,155,240	1,937	960	10,483	432	11,239	475
1955	79	2,450	36.0	31.0	2/ 845,900	5,413,874	2,210	883	10,575	436	11,265	476
1956	79	2,553	36.5	32.3	2/ 900,400	5,762,656	2,257	932	10,600	438	11,301	477
1957	75	2,651	40.5	35.3	2/ 946,000	6,055,982	2,284	1,074	10,626	440	11,304	477
1958	71	2,676	37.8	37.7	2/ 975,372	6,645,568	2,483	1,012	10,772	446	11,345	478
1959	64	2,460	39.1	38.4	2/ 930,059	6,932,294	2,816	963	10,918	451	11,493	482
1960	62	2,544	3/ 18.8	41.0	2/ 815,964	7,144,679	2,808	3/ 477	3/ 10,790	3/ 437	3/ 10,792	3/ 443
1961	56	2,486	-	44.4	-	-	-	-	-	-	-	-

1/ Prior to 1946 cows were reported only on the basis of enrollment.
2/ Estimated.
3/ Prior to 1960 proved sires in artificial breeding service included records of both non-AB and AB progeny. In 1960 proved sires in artificial breeding service include records of AB progeny only.

STATUS OF ARTIFICIAL-BREEDING PROGRAM
(January 1, 1961)

State	Studs	Herds 1/	Cows bred in State during 1960		Milk cows in United States 2/	
			Reg-istered 1/	Total	Total	Bred artificially
	Number	Number	Number	Number	Thousands	Percent
Alabama 3/-------	0	3,100	5,242	43,913	262	16.8
Alaska-----------	1	100	74	1,466	-	-
Arizona----------	1	400	1,970	12,980	53	24.5
Arkansas---------	1	4,702	3,329	30,640	229	13.4
California-------	5	17,338	29,931	347,859	899	38.7
Colorado---------	1	3,000	3,818	28,652	135	21.2
Connecticut------	1	4,000	7,652	55,621	99	56.2
Delaware 3/------	0	810	2,458	11,423	29	39.4
Florida 3/-------	0	2,550	11,967	91,960	213	43.2
Georgia 3/-------	0	1,200	4,369	41,026	233	17.6
Hawaii-----------	1	11	407	6,854	-	-
Idaho 3/---------	0	12,000	11,379	109,861	221	49.7
Illinois---------	3	41,176	36,776	259,976	616	42.2
Indiana----------	1	34,500	19,668	161,670	473	34.2
Iowa-------------	2	70,387	17,859	337,243	934	36.1
Kansas-----------	1	15,949	9,673	97,637	370	26.4
Kentucky---------	1	32,000	2,063	118,933	555	21.4
Louisiana--------	1	7,360	6,086	56,951	274	20.8
Maine------------	1	3,500	935	60,439	106	57.0
Maryland---------	1	9,750	11,321	86,360	232	37.2
Massachusetts 3/-	0	3,580	7,287	51,563	102	50.6
Michigan---------	1	33,000	31,940	330,106	694	47.6
Minnesota--------	2	78,000	28,672	608,292	1,407	43.2
Mississippi------	1	4,500	971	27,528	404	6.8
Missouri---------	1	39,462	13,884	152,120	709	21.5
Montana 3/-------	0	1,000	1,218	12,862	82	15.7
Nebraska---------	1	14,803	5,413	67,185	347	19.4
Nevada 3/--------	0	117	421	3,581	18	19.9
New Hampshire----	1	3,183	8,369	30,779	58	53.1
New Jersey-------	2	3,348	9,595	76,813	139	55.3
New Mexico 3/----	0	250	893	12,558	45	27.9
New York---------	1	50,000	118,280	638,371	1,393	45.8
North Carolina---	1	18,000	9,552	82,508	299	27.6
North Dakota 3/--	0	7,016	665	24,359	287	8.5
Ohio-------------	2	62,000	55,307	376,626	757	49.8
Oklahoma 3/------	0	1,685	2,017	16,922	275	6.2
Oregon-----------	1	9,626	8,597	87,565	177	49.5
Pennsylvania-----	5	54,844	63,824	559,961	988	56.7
Puerto Rico------	1	997	150	18,477	-	-
Rhode Island 3/--	0	325	969	6,568	15	43.8
South Carolina---	1	1,700	4,360	27,232	120	22.7
South Dakota 3/--	0	1,400	1,928	20,823	273	7.6
Tennessee--------	3	19,500	6,292	110,615	521	21.2
Texas------------	1	4,750	3,423	71,611	610	11.7
Utah-------------	1	5,868	3,366	59,341	107	55.5
Vermont 3/-------	0	8,643	16,872	125,857	288	43.7
Virginia---------	1	11,000	16,817	97,887	382	25.6
Washington-------	1	22,000	10,299	156,192	261	59.8
West Virginia 3/-	0	6,500	2,868	27,329	141	19.4
Wisconsin--------	6	84,413	87,282	1,295,692	2,426	53.4
Wyoming 3/-------	0	621	619	5,892	33	17.9
United States----	56	815,964	709,127	7,144,679	19,291	37.0

1/ Estimated.

2/ Agricultural Marketing Service estimate of number of cows and heifers 2 years old and over kept for milk.

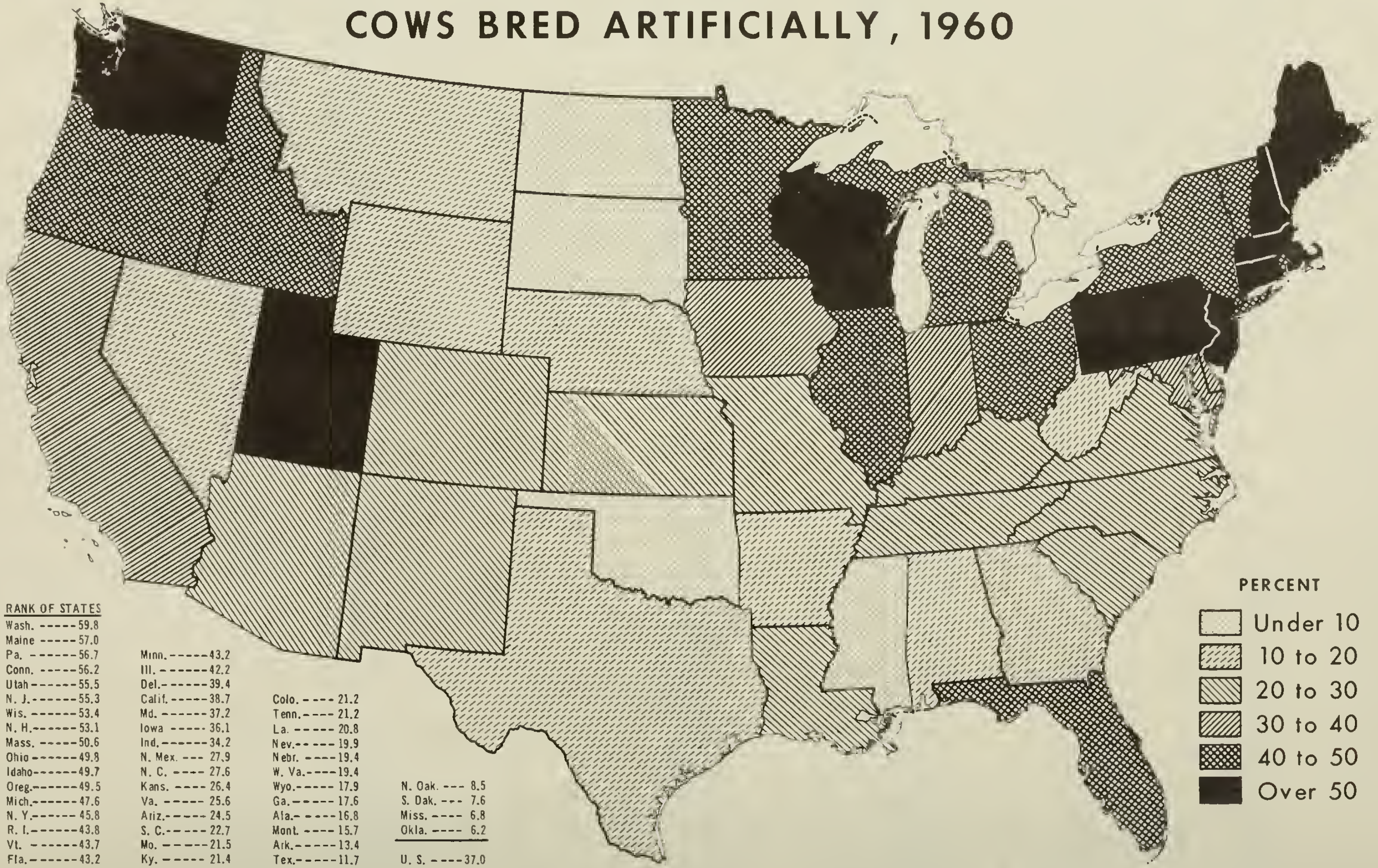
3/ Buys semen from studs in other States.

ARTIFICIAL-BREEDING ORGANIZATION BULL STUDS, JANUARY 1, 1961

State, Name and Location of Studs	Number and breed of bulls used										Total cows bred 1960
	Ayrshire	Brown Swiss	Guernsey	Holstein	Jersey	Red Dane	Red Poll	Shorthorn	Beef	Total	
ALASKA											
Matanuska Valley Breeders Association, Palmer	-	-	-	5	-	3	-	-	-	8	1,238
ARIZONA											
Eads Cattle Breeding Service, 3030 E. Thomas Rd., Phoenix	-	-	-	5	-	-	-	-	-	5	580
ARKANSAS											
Arkansas DairyBreeders Association, Fayetteville	-	-	6	10	6	-	-	3	4	29	10,168
CALIFORNIA											
Adohr Farms Inseminating Service, Route 1, Box 118, Camarillo	-	-	11	13	-	-	-	-	-	24	8,992
California Dairy Breeders, Inc., P.O. Box 188, Davis	-	-	8	11	7	-	-	-	4	30	49,363
Excelsior Art. Breeding Service, 7401 Adams St., Corona	-	-	2	7	-	-	-	-	-	9	15,756
Pacific Breeders Co-op., Inc., Petaluma	-	-	5	8	6	-	-	-	1	20	21,469
Jessup Breeders, 11638 E. Artesia Blvd., Artesia	-	4	13	24	7	-	-	1	2	51	84,415
Total	-	4	39	63	20	-	-	1	7	134	179,995
COLORADO											
Colorado State University ABS, Fort Collins	-	-	1	3	1	-	-	1	8	14	13,956
CONNECTICUT											
New England Selective Breeding Assn., Inc., Woodbridge	6	2	14	22	13	-	-	-	-	57	121,968
HAWAII											
Haleakala Dairy Farm ABA	-	-	-	2	-	-	-	-	-	2	1,206
ILLINOIS											
Curtiss Breeding Service, Inc., Cary	7	13	31	68	15	-	-	8	44	186	704,725
Northern Illinois Breeding Co-op., Route 1, Hampshire	-	9	12	30	-	-	-	3	1	55	104,938
Southern Illinois Breeding Association, Breese	-	3	7	16	6	-	-	3	10	45	70,030
Total	7	25	50	114	21	-	-	14	55	286	879,693
INDIANA											
John A. Newman & Sons, Route 2, Culver	-	-	-	8	-	-	-	-	-	8	1,130
IOWA											
Eastern Iowa ABA, Box 1751, Cedar Rapids	3	6	9	20	3	-	-	4	18	63	181,123
Iowa Breeders Co-op., Cornell & Hoffman Rd., Des Moines 13	-	-	-	30	3	-	-	-	12	45	100,388
Total	3	6	9	50	6	-	-	4	30	108	281,511
KANSAS											
Kansas ABS Unit, Kansas State University, Manhattan	4	6	6	15	5	-	-	4	4	44	50,600
KENTUCKY											
Kentucky Art. Breeding Assn., 640 Herr Lane, Louisville 7	-	5	7	11	8	-	-	-	7	38	102,015
LOUISIANA											
Louisiana ABA Inc., Box 8907 Louisiana State Univ., Baton Rouge 3	-	-	5	10	9	-	-	-	3	27	54,020
MAINE											
Maine Breeding Cooperative, Inc., Route 1, Augusta	3	1	13	12	8	-	-	4	2	43	55,826
MARYLAND											
Maryland Artificial Breeding Cooperative, Inc., College Park	6	4	11	12	6	-	-	-	-	39	96,421
MICHIGAN											
Michigan ABC Inc., Box 511, Michigan State University, E.Lansing	3	5	17	39	9	4	-	6	16	99	248,130
MINNESOTA											
Consolidated Breeders Cooperative, Inc., Anoka	-	5	8	24	5	-	-	5	11	58	228,073
Minnesota Valley Breeders Association, New Prague	3	3	10	30	6	-	-	3	11	66	307,675
Total	3	8	18	54	11	-	-	8	22	124	535,748
MISSISSIPPI											
Mississippi ABC, Box 354, State College	-	-	6	6	13	-	-	-	4	29	20,451
Tupelo Breeding Service (discontinued)	-	-	-	-	-	-	-	-	-	-	570
Total	-	-	6	6	13	-	-	-	4	29	21,021
MISSOURI											
M.F.A. Dairy Breeders, P.O. Box 591, Springfield	-	4	16	15	18	-	-	6	18	77	78,928

State, Name and Location of Studs	Number and breed of bulls used										Total cows bred 1960
	Ayrshire	Brown Swiss	Guernsey	Holstein	Jersey	Red Dane	Red Poll	Shorthorn	Beef	Total	
NEBRASKA											
Nebraska Dairy Breeders Association, Fremont	-	4	6	13	1	-	-	6	14	44	40,602
NEW HAMPSHIRE											
New Hampshire-Vermont Breeding Association, Box 350, Concord	1	-	9	15	13	-	-	-	4	42	64,130
NEW JERSEY											
New Jersey Cooperative Breeders Association, Inc., Annandale	-	3	11	20	5	-	-	-	4	43	40,010
Sussex County Cooperative Breeding Association, Sussex	-	-	5	15	-	-	-	-	-	20	13,524
Total	-	3	16	35	5	-	-	-	4	63	53,534
NEW YORK											
New York ABC, Inc., Route 2, Box 528, Ithaca	12	11	18	58	15	-	-	-	9	123	522,711
NORTH CAROLINA											
North Carolina Institutional Breeding Program, Raleigh	-	-	-	13	-	-	-	-	3	16	1,000
OHIO											
Central Ohio Breeding Assn., 1224 Alton-Darby Rd., Columbus 4	6	6	23	29	15	-	4	3	-	86	236,232
Northern Ohio Breeding Assn., Route 4, Tiffin	-	-	18	29	18	-	-	-	15	80	206,414
Total	6	6	41	58	33	-	4	3	15	166	442,646
OREGON											
Oregon Dairy Breeders Association, Box 48, Corvallis	-	-	9	9	10	-	-	-	9	37	53,075
PENNSYLVANIA											
First Pennsylvania Artificial Breeding Cooperative, Lewisburg	-	-	12	14	-	-	-	-	8	34	57,624
Lehigh Valley Farmers Assn., 1000-1160 N. 7th St., Allentown	4	2	7	15	3	-	-	-	6	37	34,069
NEPA Artificial Breeding Co-op., P.O. Box 26, Tunkhannock	5	-	10	16	8	-	-	-	-	39	106,804
Southeastern Pennsylvania ABC, Box 254, Lancaster	3	1	9	12	4	-	-	-	4	33	144,203
Western Pennsylvania ABC, Box 550, Clarion	5	5	10	14	10	-	-	-	9	53	140,672
Total	17	8	48	71	25	-	-	-	27	196	483,372
PUERTO RICO											
Puerto Rico Artificial Breeding Assn., Box 61, Bayamon	-	7	-	15	-	-	-	-	-	22	18,392
SOUTH CAROLINA											
Chester Cooperative Breeding Assn., Chester	-	-	6	-	-	-	-	-	-	6	1,792
TENNESSEE											
East Tennessee ABA, Route 14, Knoxville	2	-	5	7	6	-	-	-	3	23	37,448
Tennessee Artificial Breeding Association, Brentwood	-	4	6	6	8	-	-	2	4	30	37,764
West Tennessee Artificial Breeding Association, Yorkville	-	-	-	8	8	-	-	-	6	22	12,333
Total	2	4	11	21	22	-	-	2	13	75	87,545
TEXAS											
Texas A & M College, Dairy Breeding Center, College Station	-	-	-	2	3	-	-	-	4	9	652
UTAH											
Cache Valley Breeding Association, Logan	2	2	3	13	4	-	-	2	6	32	84,956
VIRGINIA											
Virginia ABA, Inc., Route 4, Rocky Mount	-	-	7	11	5	-	-	-	5	28	66,213
WASHINGTON											
Evergreen Northwest Breeders, Inc., Box 197, Burlington	3	3	14	15	10	-	-	4	9	58	126,938
WISCONSIN											
American Breeders Service, Madison	1	4	13	55	14	-	6	2	17	112	1,357,875
Associated Breeding Service, Inc., Lena	-	-	4	9	-	-	-	-	3	16	22,039
Badger Breeders Cooperative, Shawano	-	6	20	24	5	-	-	-	6	61	382,042
East Central Breeders Assn., Coop., 314 Beaver Dam St., Waupun	-	4	5	23	-	-	-	-	6	38	84,891
Piper Bros. Farms, Inc., Watertown	2	2	8	40	7	-	-	1	-	60	116,795
Tri-State Breeders Co-op., Westby	-	6	26	50	7	-	-	8	14	111	399,325
Total	3	22	76	201	33	-	6	11	46	398	2,362,967
UNITED STATES	81	140	482	1,006	333	7	10	79	348	2,486	7,144,679

COWS BRED ARTIFICIALLY, 1960



RANK OF STATES

State	Percent
Wash.	59.8
Maine	57.0
Pa.	56.7
Conn.	56.2
Utah	55.5
N. J.	55.3
Wis.	53.4
N. H.	53.1
Mass.	50.6
Ohio	49.8
Idaho	49.7
Oreg.	49.5
Mich.	47.6
N. Y.	45.8
R. I.	43.8
Vt.	43.7
Fla.	43.2
Minn.	43.2
Ill.	42.2
Del.	39.4
Calif.	38.7
Md.	37.2
Iowa	36.1
Ind.	34.2
N. Mex.	27.9
N. C.	27.6
Kans.	26.4
Va.	25.6
Ariz.	24.5
S. C.	22.7
Mo.	21.5
Ky.	21.4
Colo.	21.2
Tenn.	21.2
La.	20.8
Nev.	19.9
Nebr.	19.4
W. Va.	19.4
Wyo.	17.9
Ga.	17.6
Ala.	16.8
Mont.	15.7
Ark.	13.4
Tex.	11.7
N. Oak.	8.5
S. Dak.	7.6
Miss.	6.8
Okla.	6.2
U. S.	37.0

U. S. DEPARTMENT OF AGRICULTURE

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Growth Through Agricultural Progress

636.23
In3d

National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA OWNER SAMPLER WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement-Letter
ARS-44-99
(Vol. 37, No. 4)

APRIL 1961

PEAK NUMBER OF DAIRY LACTATION RECORDS REPORTED FOR PROVING SIRES

During the first three months of 1961, 304, 705 lactation records were reported by the various States for use in proving DHIA sires. This is the largest number of records ever reported for a 3-month period.

The number of records reported by States is shown on page 2.

2-1/4 MILLION LACTATION RECORDS TO BE ADDED TO MASTER FILE

Approximately 2-1/4 million additional records will be added to the Master File of DHIA lactation records when the automated procedures for proving sires are operated beginning in May. This represents the number of lactation records reported since November. 1959, which includes approximately 3/4 of a million records "pulled" from the Master File last August for correction and/or reconciliation.

The (2-1/4 million) lactation records when added to the Master File should activate the records of thousands of sires, for which proved sire or daughter average records will be compiled.

Growth Through Agricultural Progress

Issued May 1961

THE LIBRARY OF THE
MAY 22 1961
UNIVERSITY OF

PRODUCTION RECORDS REPORTED TO THE DAIRY CATTLE RESEARCH BRANCH BY STATE EXTENSION SERVICES,
FOR THE PERMANENT FILES DURING 1960 and 1961

State	First 3 Months of 1961											1960	
	Cows on test in all association herds on January 1	Production records reported 1/			Herd Test Records Reported by --				Total records reported		Records returned 2/	Production records reported 3/	
		718's	1095's	Total	American Dairy Cattle Club	Brown Swiss Cattle Breeders' Association	American Guernsey Cattle Club	American Jersey Cattle Club					
	Number	Number	Number	Number	Number	Number	Number	Number	Number	Pct.	Number	Number	Pct.
Maine-----	22,060	-	2,775	2,775	-	-	18	19	2,812	12.7	64	14,611	69.6
N. H------	12,240	979	1,753	2,732	-	-	20	15	2,767	22.6	19	7,678	65.4
Vt--------	47,792	2,981	4,076	7,057	-	20	28	151	7,256	15.2	54	23,576	51.9
Mass------	22,795	350	4,925	5,275	10	75	51	64	5,475	24.0	40	18,498	83.7
R. I------	2,709	-	532	532	-	-	37	32	601	22.2	-	1,530	55.4
Conn------	24,734	460	3,394	3,854	-	73	218	-	4,145	16.8	35	18,470	83.8
N. Y------	157,305	-	44,694	44,694	-	-	265	197	45,156	28.7	3	116,247	77.0
Pa--------	156,187	-	54,011	54,011	-	25	356	36	54,428	34.8	2,440	124,242	89.0
N. J------	28,235	1,746	2,471	4,217	-	75	291	52	4,635	16.4	193	14,984	54.5
Md--------	46,433	1,953	5,797	7,750	-	60	88	53	7,951	17.1	20	27,578	62.4
Del-------	3,832	-	1,058	1,058	-	8	70	-	1,136	29.6	-	3,538	98.4
Va--------	60,015	10,327	3,359	13,686	-	-	123	44	13,853	23.1	319	33,506	65.7
W. Va-----	9,166	874	712	1,586	-	17	5	16	1,624	17.7	3	4,400	50.4
Ky--------	17,331	1,595	408	2,003	-	13	55	121	2,192	12.6	32	7,011	40.4
N. C------	34,915	661	2,984	3,645	-	-	250	95	3,990	11.4	75	21,565	67.2
S. C------	13,850	-	1,305	1,305	-	39	215	-	1,559	11.3	25	6,973	66.1
Ga--------	22,451	601	472	1,073	-	11	48	53	1,185	5.3	42	5,979	30.3
Fla-------	21,413	787	333	1,120	-	5	133	45	1,303	6.1	16	7,150	33.1
Ala-------	20,077	251	1,472	1,723	-	-	24	83	1,830	9.1	20	8,983	50.5
Miss------	8,679	100	236	336	-	10	91	89	526	6.1	4	2,750	35.8
Tenn------	19,384	-	150	150	-	-	194	148	492	2.5	-	1,812	11.1
La--------	4,455	110	-	110	-	-	79	45	234	5.3	2	1,111	28.0
Ark-------	2,845	-	380	380	-	8	28	56	472	16.6	2	1,234	64.3
Ohio------	66,656	7,359	4,812	12,171	-	302	890	435	13,798	20.7	529	32,729	54.4
Ind-------	39,237	1,573	801	2,374	1	65	318	146	2,904	7.4	42	20,610	57.6
Ill-------	58,090	3,777	13,902	17,679	-	166	140	99	18,084	31.1	854	41,463	71.2
Mich------	66,425	-	14,880	14,880	-	128	100	137	15,245	23.0	1,107	64,997	106.8
Wis-------	100,325	-	20,369	20,369	15	105	21	57	20,567	20.5	429	46,487	47.0
Minn------	114,094	13,473	4,047	17,520	-	6	80	35	17,641	15.5	322	54,364	50.7
Iowa------	57,146	2,961	8,327	11,288	-	64	45	71	11,468	20.1	156	39,507	72.6
Mo--------	25,965	1,894	511	2,405	-	19	75	35	2,534	9.8	38	8,989	41.4
N. Dak----	5,921	339	1,222	1,561	-	35	2	-	1,598	27.0	39	4,154	76.9
S. Dak----	6,495	140	482	622	-	39	16	-	677	10.4	7	1,748	29.7
Nebr------	12,010	383	2,023	2,406	-	9	114	14	2,543	21.2	135	2,139	16.2
Kans------	29,024	1,349	1,474	2,823	-	30	48	32	2,933	10.1	78	13,483	51.6
Okla------	7,930	496	14	510	-	17	83	59	669	8.4	11	3,386	46.1
Tex-------	24,850	436	914	1,350	-	-	136	179	1,665	6.7	16	8,962	41.0
Mont------	5,697	238	616	854	-	3	18	17	892	15.7	8	1,178	21.2
Idaho-----	26,193	1,808	257	2,065	-	5	78	4	2,152	8.2	31	7,214	28.4
Wyo-------	1,937	1	300	301	-	-	9	-	310	16.0	36	109	7.6
Nev-------	3,477	-	72	72	-	-	-	34	106	3.0	4	154	5.0
Utah------	17,456	-	8,890	8,890	-	-	-	2	8,892	50.9	255	2,352	14.5
Colo------	17,464	151	1,306	1,457	-	3	26	16	1,502	8.6	55	1,364	8.8
N. Mex----	4,992	-	509	509	-	-	63	15	587	11.8	20	579	14.3
Ariz------	21,002	39	2,455	2,494	-	-	8	12	2,514	12.0	101	782	3.0
Wash------	48,224	1,399	2,707	4,106	-	-	395	122	4,623	9.6	156	36,125	82.8
Oreg------	29,696	2,466	-	2,466	-	-	193	213	2,872	9.7	33	14,976	52.1
Calif-----	313,615	1,477	290	1,767	-	37	282	103	2,189	.7	13	4,714	1.6
P. R------	4,507	31	-	31	-	-	-	-	31	.7	-	251	5.7
Hawaii----	138	-	-	-	-	-	-	-	-	-	-	253	124.6
Alaska----	0	87	-	87	-	-	-	-	87	-	-	-	-
U. S------	1,867,469	65,652	228,477	294,129	26	1,472	5,827	3,251	304,705	16.3	7,883	886,495	50.8

1/ Includes cows enrolled since January 1, 1961.
2/ Records returned to States because of inconsistent or incomplete data.
3/ Production records reported on DHIA-718 and DHIA-1095.

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AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter ARS-44-102
(Vol. 37, No. 5)

MAY 1961

MORE THAN 2,000,000 ADDITIONAL LACTATION RECORDS BEING USED TO COMPILE UP-TO-DATE DHIA PROVED-SIRE DATA

This month the Branch's automated sire-proving procedures began operating to bring up-to-date all proved-sire data on DHIA sires.

All lactation records received in the Branch up to May 1, 1961 are included in the operation. More than 2,000,000 records are being added to the Master File of approximately 5,000,000 lactation records.

The sire-proving operation is scheduled to be completed in July and August at which time up-to-date proved-sire data will be compiled on thousands of DHIA sires. Proved-sire and daughter-average records will be mailed to the State agricultural colleges in August. The printed DHIA proved-sire lists should be available for distribution in October or November.

EDITING LACTATION RECORDS

All lactation records are given two thorough edits for errors and discrepancies before they are used in proving sires. The first edit is made of records as they are received from the States. The second edit is made as the new lactation records are placed in the Master File to insure against errors or discrepancies between the new data and that on file.

1862 1962

Growth Through Agricultural Progress

Issued June 1961

The first edit of the current operation run of procedures to prove sires has been completed. The following table shows the number of records "pulled" from the incoming data because of apparent errors or discrepancies.

Results of "editing" incoming lactation records to be used to up-date the Master File of lactation records and compile up-to-date proved-sire and daughter-average records.

Breed	Number of records edited	Number of records "pulled"	Percent of records "pulled"	Estimated* percentage of records with errors
Registered:				
Ayrshire	53,105	3,147	5.9	3.0
Guernsey	250,300	15,051	6.0	3.0
Holstein	587,478	28,433	4.8	2.4
Jersey	194,108	14,098	7.3	3.7
Brown Swiss	55,414	4,949	9.9	5.0
M. Shorthorn, R. Dane and R. Poll	11,080	894	8.1	4.0
Total registered	1,151,485	66,572	5.8	2.9
Eartagged cows	1,055,627	108,916	10.3	5.1
Total or average	2,207,112	175,488	8.0	4.0

*Not all records "pulled" contained errors. If a cow had more than one record in the edit run, an error in any one record caused all records of the cow to be "pulled" for examination. It is estimated that approximately one-half of the "pulled" records contained errors. The estimated number of records containing errors is, therefore, approximately one-half of the percentage of that of "pulled" records.

SUPERVISOR AND HERD OWNER RESPONSIBLE FOR COMPLETE AND ACCURATE IDENTIFICATION DATA REPORTED

Approximately 75 percent of the records with errors that were "pulled" in the edit run contained discrepancies in identification number of the cow, her sire or dam, or her birth date.

Reporting records with errors represents lost effort, time, and money in reporting, in detecting and correcting the errors, and in losses occurring from inaccurate sire-proofs should the errors not be detected. All-out emphasis must be given to the problem of correct identification data. Two persons are basically responsible for correct identification data -- (1) the DHIA supervisor and (2) the herd owner. No one else is in position to assume this basic responsibility.

The DHIA Supervisor has the responsibility of obtaining, recording and reporting identification data.

But, The Herd Owner has the responsibility of providing or assisting the supervisor in obtaining correct identification data.

For registered cows, correct identification data can be obtained from the registration papers. The herd owner must make the registration papers available to the supervisor for checking and reference, and the supervisor must refer to the registration papers.

For eartagged animals the supervisor and the herd owner must work together to develop and maintain correct identification data on every non-registered animal in the herd.

It's a team responsibility - the supervisor and the herd owner. Together they have the basic responsibility of obtaining, recording, and reporting correct identification data that complete and accurate proved-sire data may be compiled.

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Dairy-Herd-Improvement Letter
ARS-44-103
(Vol. 37, No. 6)

June-July 1961

INTERPRETATION OF DHIA RULES 3 AND 27

DHIA Rule 3, Identification of Animals, reads:

> "Every dairy animal in DHIA herds must be positively identified and recorded in the owner's herd book within 60 days after entering the herd by birth or purchase. A herd registry page is provided for this purpose. Cows on test must be permanently identified with either (1) registration number if registered, or (2) uniform series eartags as used in DHIA disease eradication and artificial insemination. (State code, 1-, 2-, or 3-letter prefix, 4 digits.)
>
> "Tattoo numbers or branded numbers, private eartag or neckchain numbers, or band numbers are acceptable as temporary or secondary identification until the animals enter the milking herd."

The American Dairy Science Association (ADSA) Records Committee interprets this rule as follows:

> "All animals in the dairy herd must be permanently and positively identified in order for the herd to be on Standard DHIA test. All herds in which the dairyman does not identify with registration numbers or uniform series eartags as used in DHIA, disease eradication and artificial insemination, should not be considered as DHIA herds, but should be given the same recognition as Owner-Sampler herds.

Issued August 1961

1862 1962
Growth Through Agricultural Progress

DHIA Rule 27, Fraudulent Practices, reads:

> "Any practice that is intended to create or does create any abnormal percentage of butterfat or an abnormal yield of milk is in violation of DHIA rules."

The ADSA Records Committee interprets this rule as follows:

> "The DHIA monthly test is a sampling of production, feeding, and management for the current testing period and covers an exact 24-hour period. Any deviation from the regular daily routine with the intent to change test day results should be considered a fraudulent practice.
>
> "If there is any evidence of malpractice or manipulation on the part of a DHIA member or his employees, the DHIA supervisor is required to report the evidence and circumstances to the local DHIA Board of Directors, the County Agricultural Agent, or the State Extension Dairyman."

In regard to the feeding of thyroprotein to cows on DHIA test, the ADSA Records Committee concurs with the recommendation of the Testing Committee of the Purebred Dairy Cattle Association (PDCA), "that the feeding of thyroprotein and similar feed stimulants is an infraction of Rule 27." Therefore, the feeding of thyroprotein to herds on Standard DHIA test is prohibited.

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Dairy-Herd-Improvement Letter
ARS-44-106
(Vol. 37, No. 7)

August 1961

MORE THAN 6,000,000 DHIA LACTATION RECORDS IN MASTER MAGNECTIC TAPE FILE

In the operation of the automated DHIA sire-proving procedures, the Master File of DHIA lactation records is up-dated with currently reported lactation records. In the sire-proving operations now in progress, the Master File has been up-dated with current records reported up to May 1, 1961.

The tabular matter on the following page shows the number of records and number of cows, by breed, represented in the Master File as the up-dating process was completed in July 1961.

In the automated sire-proving procedures, all incoming current lactation records are given two (2) thorough edits before they are used in proving sires. The first edit is made of records as they are received from the States. The second edit is made as the new lactation records are placed in the Master File to insure against errors and discrepancies between the new data and that on file.

These two edits were completed in July. In this operation, 530,946 lactation records were "pulled" from the current records and from the Master File because of errors or discrepancies.

NOTE: Not all "pulled" records are in error. If a cow had more than one record in the edit "run", an error or discrepancy in any one record caused all records of the cow to be "pulled" for examination.

Accurate and complete reporting of lactation records is important--as pointed out in an earlier DHI Letter, the basic responsibility for recording and reporting complete and accurate data lies with the supervisor and the herd owner. No one else is in a position to assume this responsibility.

The importance of complete and accurate records is shown by the losses (time, effort, money, and opportunity to use data in proving sires) that result from the edit runs just completed, as follows:

- For each 100 lactation records of registered cows reported, editing and up-dating resulted (because of errors and/or conflicts) in approximately 13 records being "pulled" from the current and/or Master File and these records were not used in current sire-provings.

- For each 100 lactation records of nonregistered, eartagged cows reported, editing and up-dating resulted (because of errors and/or conflicts) in approximately 36 records being "pulled" from the current records and/or Master File and these records were not used in current sire-provings.

The above amply illustrates the importance in recording and reporting complete and accurate lactation records.

LACTATION RECORDS WITH ERRORS

Breed	Number of records	Number of cows represented	Number of records per cow
AYRSHIRE:			
Registered	241,152	95,851	2.5
Nonregistered	25,086	14,044	1.8
Total	266,238	109,895	2.4
GUERNSEY:			
Registered	789,613	332,174	2.4
Nonregistered	315,063	173,061	1.8
Total	1,104,676	505,235	2.2
HOLSTEIN:			
Registered	2,199,079	872,832	2.5
Nonregistered	1,478,835	857,644	1.7
Total	3,677,914	1,730,476	2.1
JERSEY:			
Registered	597,457	240,759	2.5
Nonregistered	184,304	98,355	1.9
Total	781,761	339,114	2.3
BROWN SWISS:			
Registered	162,298	63,809	2.5
Nonregistered	22,830	13,563	1.7
Total	185,128	77,372	2.4
SHORTHORN, RED DANE, AND RED POLL:			
Registered	52,761	24,922	2.1
Nonregistered	17,068	11,309	1.5
Total	69,829	36,231	2.9
ALL BREEDS:			
Registered	4,042,360	1,630,347	2.5
Nonregistered	2,043,186	1,167,976	1.7
Total	6,085,546	2,798,323	2.2

PRODUCTION RECORDS REPORTED TO THE DAIRY CATTLE RESEARCH BRANCH BY STATE EXTENSION SERVICES, FOR THE PERMANENT FILES DURING 1960 and 1961

State	First 6 months of 1961									1960	
	Cows on test in all association herds on January 1	Production records reported 1/ 2/	Herd Test Records Reported by --				Total records reported		Records Returned 3/	Production records reported 2/	
			American Dairy Cattle Club	Brown Swiss Cattle Breeders' Association	American Guernsey Cattle Club	American Jersey Cattle Club					
	Number	Number	Number	Number	Number	Number	Number	Percent	Number	Number	Percent
Maine	22,060	8,207	-	-	41	50	8,298	37.6	249	14,611	69.6
N. H.	12,240	3,610	-	-	27	42	3,679	30.1	126	7,678	65.4
Vt	47,792	9,635	-	20	48	403	10,106	21.1	317	23,576	51.9
Mass	22,795	6,570	28	75	85	223	6,981	30.6	177	18,498	83.7
R. I	2,709	574	-	-	52	133	759	28.0	13	1,530	55.4
Conn	24,734	5,750	-	73	351	-	6,174	25.0	190	18,470	83.8
N. Y	157,305	44,694	16	-	421	533	45,664	29.0	5,185	116,247	77.0
Pa	156,187	54,011	-	25	552	130	54,718	35.0	5,581	124,242	89.0
N. J	28,235	5,643	-	75	540	187	6,445	22.8	367	14,984	54.5
Md	46,433	10,513	-	60	302	165	11,040	23.8	155	27,578	62.4
Del	3,832	1,058	-	8	98	-	1,164	30.4	24	3,538	98.4
Va	60,015	23,062	-	-	170	108	23,340	38.9	620	33,506	65.7
W. Va	9,166	2,032	-	17	6	59	2,114	23.1	36	4,400	50.4
Ky	17,331	3,209	-	13	89	380	3,691	21.3	110	7,011	40.4
N. C	34,915	8,651	-	-	424	300	9,375	26.9	232	21,565	67.2
S. C	13,850	3,603	-	39	300	-	3,942	28.5	80	6,973	66.1
Ga	22,451	3,141	-	11	116	172	3,440	15.3	82	5,979	30.3
Fla	21,413	2,518	-	5	195	94	2,812	13.1	51	7,150	33.1
Ala	20,077	2,703	-	-	28	164	2,895	14.4	55	8,983	50.5
Miss	8,679	664	-	10	162	215	1,051	12.1	32	2,750	35.8
Tenn	19,384	2,639	-	-	324	572	3,535	18.2	32	1,812	11.1
La	4,455	249	-	-	129	146	524	11.8	3	1,111	28.0
Ark	2,845	724	-	8	42	134	908	31.9	30	1,234	64.3
Ohio	66,656	19,914	-	302	1,313	1,300	22,829	34.2	828	32,729	54.4
Ind	39,237	6,367	27	65	527	424	7,410	18.9	121	20,610	57.6
Ill	58,090	24,104	-	166	259	264	24,793	42.7	1,420	41,463	71.2
Mich	66,425	27,453	-	128	179	413	28,173	42.4	1,901	64,997	106.8
Wis	100,325	83,629	55	105	32	147	83,968	83.7	1,925	46,487	47.0
Minn	114,094	30,152	-	6	134	110	30,402	26.6	976	54,364	50.7
Iowa	57,146	19,061	-	64	65	234	19,424	34.0	521	39,507	72.6
Mo	25,965	4,347	-	19	123	118	4,607	17.7	99	8,989	41.4
N. Dak	5,921	2,254	-	35	6	-	2,295	38.8	82	4,154	76.9
S. Dak	6,495	929	-	39	16	-	984	15.2	21	1,748	29.7
Nebr	12,010	3,173	-	9	226	36	3,444	28.7	228	2,139	16.2
Kans	29,024	6,172	-	30	84	97	6,383	22.0	143	13,483	51.6
Okla	7,930	718	-	17	173	222	1,130	14.2	37	3,386	46.1
Tex	24,850	2,372	-	-	187	586	3,145	12.7	47	8,962	41.0
Mont	5,697	1,116	-	3	40	17	1,176	20.6	14	1,178	21.2
Idaho	26,193	3,730	-	5	142	118	3,995	15.3	71	7,214	28.4
Wyo	1,937	373	-	-	16	-	389	20.1	39	109	7.6
Nev	3,477	93	-	-	-	101	194	5.6	4	154	5.0
Utah	17,456	10,902	-	-	1	11	10,914	62.5	309	2,352	14.5
Colo	17,464	2,069	-	3	36	59	2,167	12.4	94	1,364	8.8
N. Mex	4,992	619	-	-	105	75	799	16.0	43	579	14.3
Ariz	21,002	3,081	-	-	16	24	3,121	14.9	114	782	3.0
Wash	48,224	10,698	-	-	642	332	11,672	24.2	426	36,125	82.8
Oreg	29,696	10,549	-	-	294	685	11,528	38.8	308	14,976	52.1
Calif	313,615	2,728	-	37	575	370	3,710	1.2	26	4,714	1.6
P. R	4,507	31	-	-	-	-	31	.7	-	251	5.7
Hawaii	138	59	-	-	-	-	59	42.8	-	253	124.6
Alaska	0	87	-	-	-	-	87	-	1	-	-
U. S	1,867,469	480,240	126	1,472	9,693	9,953	501,484	26.9	23,545	886,495	50.8

1/ Includes cows enrolled since January 1, 1961.
2/ Production records reported on DHIA-718 and DHIA-1095.
3/ Records returned to States because of inconsistent or incomplete data.

UNITED STATES DEPARTMENT OF AGRICULTURE
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AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter
ARS-44-107
(Vol. 37, No. 8)

September 1961

DHIA LACTATION AVERAGES

1958-1959

During the operation of the automated sire-proving procedures now in progress, DHIA lactation records with 1958 and 1959 calving dates were selected from the master tape file and compiled as an auxiliary operation. Last year lactation records with 1956 and 1957 calving dates were compiled.

In future operations, 305-day lactation records with current year calving date will be compiled annually.

On the following pages are tabulations of DHIA 305-day lactation records with 1958 and 1959 calving dates, grouped by breed, by State, by month of calving. These tabulations include records received from the various States by the Dairy Cattle Research Branch, Animal Husbandry Research Division, Agricultural Research Service as a part of the National Cooperative Dairy-Herd-Improvement Program. All lactations were standardized to a mature-equivalent, twice-a-day milking basis.

ERRATA: August 1961 DHI Letter, ARS-44-106, Vol. 37, No. 7, on page 2 the center head should read:
LACTATION RECORDS IN THE DHIA MASTER FILE.

Issued October 1961

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305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE-1958

ALL BREEDS

1958 CALVING YEAR

STATE	CODE	REGISTERED NO.RECS.	MILK	FAT	NON-REGISTERED NO.RECS.	MILK	FAT	ALL NO.RECS.	MILK	FAT
MAINE	11	5122	11184	465	2988	10636	429	8110	10982	452
NEW HAMPSHIRE	12	4058	10985	453	833	10378	418	4891	10882	447
VERMONT	13	8933	10632	457	4370	9874	411	13303	10383	442
MASSACHUSETTS	14	7629	11117	463	3371	10792	420	11000	11018	450
RHODE ISLAND	15	998	10987	468	28	11414	430	1026	10999	467
CONNECTICUT	16	7292	11299	476	3156	11451	439	10448	11345	465
NEW YORK	21	56016	11839	452	12356	11243	414	68372	11731	445
NEW JERSEY	22	7046	11111	454	1862	11648	436	8908	11224	450
PENNSYLVANIA	23	59425	10709	429	37513	10039	387	96938	10450	413
OHIO	31	20109	10510	430	4713	11450	428	24822	10688	430
INDIANA	32	8541	10664	448	726	11717	451	9267	10747	448
ILLINOIS	33	16106	11383	455	10435	11408	426	26541	11393	444
MICHIGAN	34	16980	11675	451	21193	10793	404	38173	11185	425
WISCONSIN	35	26573	12011	459	11463	11756	438	38036	11934	452
MINNESOTA	41	13112	11553	445	24212	11595	422	37324	11580	430
IOWA	42	12249	11376	447	11623	11211	419	23872	11296	433
MISSOURI	43	4263	10063	426	2654	10150	405	6917	10096	418
NORTH DAKOTA	45	755	11229	427	1136	11544	415	1891	11418	420
SOUTH DAKOTA	46	626	12322	464	409	12312	423	1035	12318	447
NEBRASKA	47	2140	11090	440	859	10779	397	2999	11001	427
KANSAS	48	5181	10409	418	3008	10906	408	8189	10592	414
DELAWARE	50	1317	10323	412	743	9183	353	2060	9912	391
MARYLAND	51	11729	10582	428	7860	10134	391	19589	10402	413
VIRGINIA	52	10003	10633	439	11733	10464	403	21736	10542	420
WEST VIRGINIA	54	2040	9563	385	951	9532	369	2991	9554	380
NORTH CAROLINA	55	6363	9458	394	4863	9430	359	11226	9446	379
SOUTH CAROLINA	56	2308	8557	378	1146	9391	357	3454	8833	371
GEORGIA	57	1973	8971	385	1226	9206	359	3199	9062	375
FLORIDA	58	3155	8119	363	736	8713	384	3891	8231	367
KENTUCKY	61	2772	9508	397	1286	10676	396	4058	9878	397
TENNESSEE	63	1503	7926	391	15	11000	470	1518	7956	392
ALABAMA	64	1675	7116	329	2714	7967	307	4389	7642	315
MISSISSIPPI	65	1390	7453	349	249	8367	361	1639	7592	351
ARKANSAS	71	338	8021	381	35	10197	421	373	8226	385
LOUISIANA	72	827	7284	341	103	8220	340	930	7388	341
OKLAHOMA	73	1319	9480	395	439	11100	417	1758	9884	400
TEXAS	74	3314	8765	408	1417	10751	411	4731	9360	409
MONTANA	81	622	10656	442	629	11617	422	1251	11139	432
IDAHO	82	3642	10778	453	1744	11658	450	5386	11063	452
WYOMING	83	196	12401	450	170	11604	416	366	12031	434
COLORADO	84	1564	10785	430	247	11642	452	1811	10902	433
NEW MEXICO	85	605	9003	423	59	11048	497	664	9184	429
ARIZONA	86	663	10606	425	1454	11856	433	2117	11465	430
UTAH	87	2642	11252	447	5425	11891	441	8067	11681	443
NEVADA	88	255	8999	452	42	13446	448	297	9628	451
WASHINGTON	91	7648	11138	481	7696	11526	464	15344	11332	472
OREGON	92	5380	9616	457	6201	10345	434	11581	10006	445
CALIFORNIA	93	2464	11584	507	702	13050	503	3166	11909	506
HAWAII	95	22	11663	365	2	10340	340	24	11553	363
ALASKA	96	9	13228	513	6	11960	505	15	12721	510
U.S. AVERAGE		360892	10964	441	213801	10813	411	579693	10907	430

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE-1958

AYRSHIRE

1958 CALVING YEAR

STATE	CODE	REGISTERED NO.RECS.	REGISTERED MILK	REGISTERED FAT	NON-REGISTERED NO.RECS.	NON-REGISTERED MILK	NON-REGISTERED FAT	ALL NO.RECS.	ALL MILK	ALL FAT
MAINE	11	410	9822	397	54	9344	378	464	9766	395
NEW HAMPSHIRE	12	457	9934	407	30	8673	363	487	9857	404
VERMONT	13	1232	10028	410	199	8842	355	1431	9863	403
MASSACHUSETTS	14	879	10163	423	122	8610	356	1001	9974	414
RHODE ISLAND	15	208	10604	436	2	10830	506	210	10606	437
CONNECTICUT	16	765	10078	415	64	8598	350	829	9964	410
NEW YORK	21	3507	9810	399	194	9333	368	3701	9785	397
NEW JERSEY	22	63	10307	433	4	9055	374	67	10233	430
PENNSYLVANIA	23	2768	9080	378	563	7990	330	3331	8895	370
OHIO	31	1025	9738	394	27	9680	390	1052	9737	394
INDIANA	32	318	9207	365				318	9207	365
ILLINOIS	33	362	8641	359	18	10331	396	380	8721	361
MICHIGAN	34	257	10086	415	79	8043	323	336	9606	393
WISCONSIN	35	375	9340	381	13	10208	395	388	9369	381
MINNESOTA	41	445	9290	374	92	9503	367	537	9327	372
IOWA	42	453	9357	375	56	9285	371	509	9349	375
MISSOURI	43	12	8487	348	2	12420	534	14	9049	374
NORTH DAKOTA	45	1	6210	264				1	6210	264
SOUTH DAKOTA	46	36	10449	428				36	10449	428
NEBRASKA	47	11	7320	321	13	7864	322	24	7615	321
KANSAS	48	815	9063	373	68	8537	354	883	9022	372
DELAWARE	50	165	9203	365	13	7302	277	178	9064	358
MARYLAND	51	841	9523	394	111	8565	344	952	9411	388
VIRGINIA	52	161	7915	317	48	8645	347	209	8083	324
WEST VIRGINIA	54	115	8857	362	23	8312	347	138	8766	360
NORTH CAROLINA	55	258	8506	340	61	6982	285	319	8215	329
SOUTH CAROLINA	56	82	8429	348	1	8490	323	83	8430	348
GEORGIA	57	43	8156	310	5	10004	419	48	8348	321
FLORIDA	58	148	8485	329	7	8599	328	155	8490	329
KENTUCKY	61	9	6900	279	3	6930	279	12	6908	279
TENNESSEE	63	26	9877	394				26	9877	394
ALABAMA	64	65	6934	275	34	5977	234	99	6606	261
MISSISSIPPI	65	27	7808	311	2	9005	398	29	7890	317
ARKANSAS	71									
LOUISIANA	72	52	7079	273				52	7079	273
OKLAHOMA	73	166	9409	380				166	9409	380
TEXAS	74	72	9825	383	2	6995	259	74	9749	380
MONTANA	81	31	10968	450	1	10610	470	32	10957	450
IDAHO	82	35	10500	411	7	9061	343	42	10264	400
WYOMING	83	3	7573	320	1	7770	279	4	7623	310
COLORADO	84	145	9538	391	1	9850	442	146	9541	392
NEW MEXICO	85									
ARIZONA	86	49	9503	367	2	7725	278	51	9434	364
UTAH	87	27	9022	360	6	9345	377	33	9081	363
NEVADA	88									
WASHINGTON	91	175	9566	394	48	9681	409	223	9591	397
OREGON	92	47	9577	391	57	8166	331	104	8804	358
CALIFORNIA	93	218	11256	468	39	7753	302	257	10724	443
HAWAII	95									
ALASKA	96									
U.S. AVERAGE		17359	9548	391	2072	8522	345	19431	9439	386

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE-1958

GUERNSEY

1958 CALVING YEAR

STATE	CODE	REGISTERED			NON-REGISTERED			ALL		
		NO.RECS.	MILK	FAT	NO.RECS.	MILK	FAT	NO.RECS.	MILK	FAT
MAINE	11	836	8499	416	432	8085	390	1268	8358	407
NEW HAMPSHIRE	12	609	8791	409	85	8351	377	694	8737	405
VERMONT	13	851	8723	417	380	8207	388	1231	8564	408
MASSACHUSETTS	14	1438	8913	431	418	8234	389	1856	8760	421
RHODE ISLAND	15	238	9336	451				238	9336	451
CONNECTICUT	16	2374	9372	454	444	8583	402	2818	9248	446
NEW YORK	21	5558	8829	422	762	8237	382	6320	8758	417
NEW JERSEY	22	1994	8504	417	167	8308	390	2161	8488	414
PENNSYLVANIA	23	13664	8033	389	5135	7233	337	18799	7814	375
OHIO	31	4021	8695	411	340	8385	385	4361	8671	409
INDIANA	32	2882	8907	437	89	9476	447	2971	8924	437
ILLINOIS	33	2749	8829	424	700	8300	382	3449	8721	416
MICHIGAN	34	2346	8857	431	1961	7598	358	4307	8284	398
WISCONSIN	35	3909	8550	413	1521	8506	402	5430	8538	410
MINNESOTA	41	1863	8527	411	2129	8128	385	3992	8314	397
IOWA	42	1554	8767	426	1392	8052	383	2946	8429	406
MISSOURI	43	966	8356	408	377	7665	361	1343	8162	395
NORTH DAKOTA	45	47	8445	397	67	8500	405	114	8477	402
SOUTH DAKOTA	46	53	8897	419	5	9556	411	58	8954	418
NEBRASKA	47	536	8465	412	66	7975	382	602	8411	409
KANSAS	48	588	8150	412	142	8090	393	730	8138	408
DELAWARE	50	403	7812	375	172	7314	330	575	7663	362
MARYLAND	51	2765	8336	405	1133	7570	356	3898	8113	391
VIRGINIA	52	3614	8453	414	1507	7801	365	5121	8261	400
WEST VIRGINIA	54	353	7289	355	139	7386	337	492	7316	350
NORTH CAROLINA	55	2306	7910	382	543	6913	318	2849	7720	370
SOUTH CAROLINA	56	1398	7937	374	288	7156	319	1686	7803	365
GEORGIA	57	386	7566	369	140	7473	335	526	7541	360
FLORIDA	58	1272	7401	335	236	8229	378	1508	7531	342
KENTUCKY	61	460	7599	369	66	7558	350	526	7594	367
TENNESSEE	63	313	8373	405	2	8780	431	315	8376	405
ALABAMA	64	265	7284	332	332	6451	289	597	6821	308
MISSISSIPPI	65	689	7373	344	30	7737	340	719	7388	344
ARKANSAS	71	111	7774	367	5	9904	484	116	7866	372
LOUISIANA	72	300	7138	344	17	7122	330	317	7137	343
OKLAHOMA	73	270	7588	352	23	9389	425	293	7729	357
TEXAS	74	440	8146	380	80	7961	357	520	8117	376
MONTANA	81	88	9207	466	12	8498	388	100	9122	457
IDAHO	82	881	8938	429	166	8725	402	1047	8905	425
WYOMING	83	6	9972	469	5	8056	349	11	9101	415
COLORADO	84	208	8449	410	55	8516	400	263	8463	408
NEW MEXICO	85	341	9057	435	29	9456	465	370	9089	437
ARIZONA	86	262	9188	422	96	8911	407	358	9113	418
UTAH	87	409	8202	395	244	8117	370	653	8170	386
NEVADA	88	134	8026	379				134	8026	379
WASHINGTON	91	2050	9407	468	1233	8947	424	3283	9234	451
OREGON	92	1508	8633	425	1175	8862	413	2683	8733	420
CALIFORNIA	93	877	9426	469	84	8445	420	961	9340	465
HAWAII	95									
ALASKA	96	1	10520	509				1	10520	509
U.S. AVERAGE		71186	8479	410	24424	7905	370	95610	8332	400

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE-1958

HOLSTEIN

1958 CALVING YEAR

STATE	CODE	REGISTERED NO.RECS.	MILK	FAT	NON-REGISTERED NO.RECS.	MILK	FAT	ALL NO.RECS.	MILK	FAT
MAINE	11	2798	13210	501	2102	11661	442	4900	12545	476
NEW HAMPSHIRE	12	2268	12544	475	586	11243	426	2854	12277	465
VERMONT	13	3724	12900	481	2294	11426	422	6018	12338	459
MASSACHUSETTS	14	3775	12932	484	2578	11566	430	6353	12378	462
RHODE ISLAND	15	360	13509	511	26	11459	424	386	13371	505
CONNECTICUT	16	3122	13709	512	2481	12253	451	5603	13064	485
NEW YORK	21	41505	12834	465	10849	11650	418	52354	12589	455
NEW JERSEY	22	4265	12598	469	1630	12096	442	5895	12459	462
PENNSYLVANIA	23	39275	11996	448	29971	10725	398	69246	11446	426
OHIO	31	9130	12572	448	3855	12122	433	12985	12439	444
INDIANA	32	3672	13121	479	592	12366	458	4264	13016	477
ILLINOIS	33	9833	12834	479	9242	11750	430	19075	12309	455
MICHIGAN	34	11795	12876	463	17801	11372	411	29596	11971	432
WISCONSIN	35	19610	13048	473	9504	12429	445	29114	12846	464
MINNESOTA	41	8640	12890	463	21090	12080	427	29730	12315	437
IOWA	42	7034	12958	469	9342	11910	427	16376	12360	445
MISSOURI	43	1917	12126	444	1850	11167	418	3767	11655	431
NORTH DAKOTA	45	457	12381	447	1043	11797	417	1500	11975	426
SOUTH DAKOTA	46	410	13290	467	377	12444	424	787	12884	447
NEBRASKA	47	1263	12782	464	744	11168	400	2007	12184	441
KANSAS	48	2815	12071	443	2688	11220	411	5503	11655	428
DELAWARE	50	678	12286	443	525	9901	358	1203	11245	406
MARYLAND	51	6894	12117	450	6406	10678	398	13300	11424	425
VIRGINIA	52	5216	12619	463	9852	10961	409	15068	11535	428
WEST VIRGINIA	54	1121	11254	405	695	10305	377	1816	10891	394
NORTH CAROLINA	55	2765	11564	415	3914	10023	369	6679	10661	388
SOUTH CAROLINA	56	494	10571	381	773	10227	367	1267	10361	373
GEORGIA	57	738	11668	419	823	10063	368	1561	10822	392
FLORIDA	58	436	10838	387	182	10644	392	618	10781	388
KENTUCKY	61	1359	11488	417	1099	11169	401	2458	11345	410
TENNESSEE	63	46	10913	390	8	12738	490	54	11183	405
ALABAMA	64	198	10201	353	1581	9275	329	1779	9378	331
MISSISSIPPI	65	96	11477	414	63	11556	420	159	11509	416
ARKANSAS	71	27	12405	452	22	11105	425	49	11821	440
LOUISIANA	72	100	10845	396	42	10995	392	142	10889	395
OKLAHOMA	73	409	12763	453	372	11624	421	781	12221	438
TEXAS	74	599	12172	439	953	12315	440	1552	12260	440
MONTANA	81	228	13679	482	581	11904	422	809	12405	439
IDAHO	82	1594	13576	487	1355	12542	460	2949	13101	475
WYOMING	83	175	12694	450	162	11759	418	337	12245	434
COLORADO	84	774	12733	453	178	12920	474	952	12768	457
NEW MEXICO	85	75	12421	437	18	15019	556	93	12924	460
ARIZONA	86	284	12626	438	1309	12138	436	1593	12225	436
UTAH	87	1655	13280	483	4720	12448	448	6375	12664	457
NEVADA	88	8	14266	482	42	13446	448	50	13577	453
WASHINGTON	91	3274	13883	506	5327	12717	476	8601	13161	487
OREGON	92	967	13197	475	3199	11932	442	4166	12226	450
CALIFORNIA	93	818	15178	551	510	14546	528	1328	14935	543
HAWAII	95	22	11663	365	2	10340	340	24	11553	363
ALASKA	96	8	13566	514				8	13566	514
U.S. AVERAGE		208726	12647	463	175358	11510	419	384084	12128	443

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE-1958

JERSEY

1958 CALVING YEAR

STATE	CODE	REGISTERED			NON-REGISTERED			ALL		
		NO.RECS.	MILK	FAT	NO.RECS.	MILK	FAT	NO.RECS.	MILK	FAT
MAINE	11	987	8459	442	385	8125	416	1372	8365	434
NEW HAMPSHIRE	12	644	8550	458	124	8140	421	768	8484	453
VERMONT	13	2902	8518	456	1411	7902	406	4313	8317	440
MASSACHUSETTS	14	1135	8716	466	219	7826	398	1354	8572	455
RHODE ISLAND	15	176	8605	446				176	8605	446
CONNECTICUT	16	762	8629	456	135	7729	402	897	8494	448
NEW YORK	21	3893	7879	415	445	7700	395	4338	7860	413
NEW JERSEY	22	438	8646	466	41	8269	424	479	8614	462
PENNSYLVANIA	23	3002	7699	408	1613	7090	362	4615	7486	392
OHIO	31	4356	7938	413	396	7870	412	4752	7932	413
INDIANA	32	1211	7776	406	39	7312	355	1250	7762	404
ILLINOIS	33	1385	7713	398	186	7825	406	1571	7727	399
MICHIGAN	34	1609	7867	417	1015	7481	382	2624	7718	404
WISCONSIN	35	992	8058	431	305	7587	393	1297	7947	422
MINNESOTA	41	1031	8008	420	516	7644	397	1547	7887	412
IOWA	42	1196	7813	413	425	7537	384	1621	7741	405
MISSOURI	43	1042	7884	417	378	7759	387	1420	7851	409
NORTH DAKOTA	45	5	8116	396	2	4205	241	7	6999	352
SOUTH DAKOTA	46	19	7743	419				19	7743	419
NEBRASKA	47	94	8161	428	12	8028	417	106	8146	426
KANSAS	48	533	7405	397	56	7017	358	589	7368	393
DELAWARE	50	62	8226	431	25	8838	470	87	8402	442
MARYLAND	51	941	7292	383	145	7127	362	1086	7270	380
VIRGINIA	52	807	8320	430	295	7647	386	1102	8140	418
WEST VIRGINIA	54	397	7219	373	89	7203	364	486	7216	371
NORTH CAROLINA	55	981	7511	383	292	6879	326	1273	7366	370
SOUTH CAROLINA	56	261	7582	390	23	6427	311	284	7488	384
GEORGIA	57	793	7189	367	218	7127	334	1011	7176	360
FLORIDA	58	1264	7822	388	303	7878	382	1567	7833	387
KENTUCKY	61	841	7389	382	102	7555	371	943	7407	381
TENNESSEE	63	1118	7632	387	5	9108	455	1123	7639	388
ALABAMA	64	1135	6543	327	743	5914	270	1878	6294	305
MISSISSIPPI	65	570	6806	344	154	7177	340	724	6885	343
ARKANSAS	71	187	7344	376	5	6826	343	192	7331	375
LOUISIANA	72	375	6479	333	43	5999	295	418	6430	329
OKLAHOMA	73	365	7240	376	40	7149	372	405	7231	375
TEXAS	74	2094	7849	408	370	7379	350	2464	7778	400
MONTANA	81	158	7224	394	33	7828	418	191	7328	398
IDAHO	82	996	8084	429	205	8343	428	1201	8129	429
WYOMING	83				1	7990	449	1	7990	449
COLORADO	84	228	7387	402	10	6661	352	238	7356	400
NEW MEXICO	85	189	7547	395	12	8938	487	201	7630	400
ARIZONA	86	68	8425	427	12	7531	331	80	8291	413
UTAH	87	545	7499	381	433	8035	396	978	7737	388
NEVADA	88	113	9780	537				113	9780	537
WASHINGTON	91	1925	8522	467	1002	8620	455	2927	8556	463
OREGON	92	2576	8770	474	1712	8465	436	4288	8648	459
CALIFORNIA	93	501	9467	511	69	10597	531	570	9604	514
HAWAII	95									
ALASKA	96									
U.S. AVERAGE		46902	7949	418	14044	7693	390	60946	7890	411

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE-1958

BROWN SWISS

1958 CALVING YEAR

STATE	CODE	REGISTERED NO.RECS.	REGISTERED MILK	REGISTERED FAT	NON-REGISTERED NO.RECS.	NON-REGISTERED MILK	NON-REGISTERED FAT	ALL NO.RECS.	ALL MILK	ALL FAT
MAINE	11	27	11761	476	5	11074	465	32	11654	475
NEW HAMPSHIRE	12	32	9375	385	4	10080	415	36	9453	388
VERMONT	13	184	11031	469	77	10652	445	261	10919	462
MASSACHUSETTS	14	382	10956	462	31	10454	427	413	10919	459
RHODE ISLAND	15	16	10026	388				16	10026	388
CONNECTICUT	16	254	11607	491	30	10400	413	284	11479	483
NEW YORK	21	1395	10810	447	91	9760	397	1486	10746	444
NEW JERSEY	22	286	11071	465	20	10532	424	306	11036	462
PENNSYLVANIA	23	591	10423	435	195	9239	377	786	10129	420
OHIO	31	1413	11067	460	88	10778	448	1501	11050	459
INDIANA	32	389	11002	456	2	13710	583	391	11016	457
ILLINOIS	33	1492	11229	463	255	10477	426	1747	11119	457
MICHIGAN	34	824	11025	440	241	9904	390	1065	10771	429
WISCONSIN	35	1434	11206	452	113	10456	415	1547	11151	449
MINNESOTA	41	853	11120	450	352	10010	397	1205	10796	435
IOWA	42	1644	10919	445	373	10244	410	2017	10794	439
MISSOURI	43	239	10214	418	29	9796	417	268	10169	418
NORTH DAKOTA	45	176	10154	417	10	11504	461	186	10226	420
SOUTH DAKOTA	46	108	11760	492	27	10985	407	135	11605	475
NEBRASKA	47	150	10220	423	21	9499	366	171	10132	416
KANSAS	48	232	10022	417	44	10128	426	276	10039	419
DELAWARE	50	9	9854	438	4	4625	217	13	8245	370
MARYLAND	51	196	9719	406	58	10874	452	254	9983	416
VIRGINIA	52	139	10850	450	21	11949	491	160	10995	456
WEST VIRGINIA	54	54	8089	326	3	10687	436	57	8226	331
NORTH CAROLINA	55	35	8885	361	41	8984	375	76	8938	369
SOUTH CAROLINA	56	73	10428	413	61	10490	432	134	10456	422
GEORGIA	57	13	9025	377	39	8922	391	52	8948	388
FLORIDA	58	35	9511	376	8	10823	454	43	9755	390
KENTUCKY	61	102	9451	380	15	10309	415	117	9561	384
TENNESSEE	63									
ALABAMA	64	12	7680	303	11	9847	405	23	8717	352
MISSISSIPPI	65	8	10951	427				8	10951	427
ARKANSAS	71	6	11502	465	1	8150	352	7	11023	449
LOUISIANA	72									
OKLAHOMA	73	49	11152	442	4	11695	476	53	11193	444
TEXAS	74	71	10188	397	5	10982	423	76	10240	399
MONTANA	81	79	11815	474				79	11815	474
IDAHO	82	57	10833	454	9	10426	453	66	10777	454
WYOMING	83	12	10548	474	1	11710	491	13	10638	475
COLORADO	84	161	11271	460	3	10340	432	164	11254	459
NEW MEXICO	85									
ARIZONA	86				32	11212	429	32	11212	429
UTAH	87	6	10380	403	15	11369	449	21	11087	436
NEVADA	88									
WASHINGTON	91	171	10958	451	26	10214	429	197	10860	448
OREGON	92	188	10976	465	27	11557	497	215	11049	469
CALIFORNIA	93	50	13288	549				50	13288	549
HAWAII	95									
ALASKA	96									
U.S. AVERAGE		13647	10923	449	2392	10178	412	16039	10812	443

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE-1958

MILKING SHORTHORN

1958 CALVING YEAR

STATE	CODE	REGISTERED NO.RECS.	REGISTERED MILK	REGISTERED FAT	NON-REGISTERED NO.RECS.	NON-REGISTERED MILK	NON-REGISTERED FAT	ALL NO.RECS.	ALL MILK	ALL FAT
MAINE	11	64	8164	317	8	8441	335	72	8195	319
NEW HAMPSHIRE	12	48	8906	327	4	9190	355	52	8928	330
VERMONT	13	40	10266	397	5	10638	437	45	10307	402
MASSACHUSETTS	14	20	8326	322	3	11047	441	23	8681	338
RHODE ISLAND	15									
CONNECTICUT	16	15	7437	291	2	11075	488	17	7865	314
NEW YORK	21	158	7853	299	15	8911	334	173	7944	302
NEW JERSEY	22									
PENNSYLVANIA	23	125	8413	315	34	8322	340	159	8394	320
OHIO	31	141	8430	319	2	5815	242	143	8393	318
INDIANA	32	69	8830	339	4	7450	303	73	8754	337
ILLINOIS	33	271	8177	307	28	9680	375	299	8318	314
MICHIGAN	34	146	8394	314	23	7080	269	169	8215	308
WISCONSIN	35	246	9129	347	5	10566	431	251	9158	349
MINNESOTA	41	259	8495	322	29	9864	387	288	8633	328
IOWA	42	332	8379	320	33	8473	327	365	8388	321
MISSOURI	43	87	9462	387	15	8959	375	102	9388	386
NORTH DAKOTA	45	59	8822	351	13	8398	322	72	8746	346
SOUTH DAKOTA	46									
NEBRASKA	47	86	7811	303	3	8837	346	89	7845	305
KANSAS	48	198	7578	306	10	7748	308	208	7586	306
DELAWARE	50				4	8025	284	4	8025	284
MARYLAND	51	92	8216	326	7	8559	357	99	8240	329
VIRGINIA	52	66	7462	307	10	11306	437	76	7968	324
WEST VIRGINIA	54				2	6195	262	2	6195	262
NORTH CAROLINA	55	18	5111	200	12	5938	253	30	5442	221
SOUTH CAROLINA	56									
GEORGIA	57				1	7680	296	1	7680	296
FLORIDA	58									
KENTUCKY	61	1	9620	446	1	8760	301	2	9190	374
TENNESSEE	63									
ALABAMA	64				5	7030	292	5	7030	292
MISSISSIPPI	65									
ARKANSAS	71	7	10147	389	2	10400	445	9	10203	401
LOUISIANA	72				1	5860	251	1	5860	251
OKLAHOMA	73	60	8064	303				60	8064	303
TEXAS	74	38	8070	293	6	9073	370	44	8207	303
MONTANA	81	38	7480	281	2	10005	409	40	7606	288
IDAHO	82	79	8869	327	2	10130	389	81	8900	328
WYOMING	83									
COLORADO	84	48	7783	290				48	7783	290
NEW MEXICO	85									
ARIZONA	86				3	10160	366	3	10160	366
UTAH	87				7	9516	423	7	9516	423
NEVADA	88									
WASHINGTON	91	53	9279	351	59	9224	394	112	9250	374
OREGON	92	94	9062	339	27	9619	406	121	9186	354
CALIFORNIA	93									
HAWAII	95									
ALASKA	96									
U.S. AVERAGE		2958	8393	321	387	8872	358	3345	8449	325

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE-1958

RED DANE

1958 CALVING YEAR

STATE	CODE	REGISTERED			NON-REGISTERED			ALL		
		NO.RECS.	MILK	FAT	NO.RECS.	MILK	FAT	NO.RECS.	MILK	FAT
MAINE	11				1	6340	315	1	6340	315
NEW HAMPSHIRE	12									
VERMONT	13				4	8838	427	4	8838	427
MASSACHUSETTS	14									
RHODE ISLAND	15									
CONNECTICUT	16									
NEW YORK	21									
NEW JERSEY	22									
PENNSYLVANIA	23				2	6430	214	2	6430	214
OHIO	31				4	8798	339	4	8798	339
INDIANA	32									
ILLINOIS	33				1	9880	440	1	9880	440
MICHIGAN	34	3	10497	392	71	8614	329	74	8690	332
WISCONSIN	35				2	7700	329	2	7700	329
MINNESOTA	41									
IOWA	42									
MISSOURI	43				2	2590	105	2	2590	105
NORTH DAKOTA	45									
SOUTH DAKOTA	46									
NEBRASKA	47									
KANSAS	48									
DELAWARE	50									
MARYLAND	51									
VIRGINIA	52									
WEST VIRGINIA	54									
NORTH CAROLINA	55									
SOUTH CAROLINA	56									
GEORGIA	57									
FLORIDA	58									
KENTUCKY	61									
TENNESSEE	63									
ALABAMA	64				8	9395	413	8	9395	413
MISSISSIPPI	65									
ARKANSAS	71									
LOUISIANA	72									
OKLAHOMA	73									
TEXAS	74				1	7050	291	1	7050	291
MONTANA	81									
IDAHO	82									
WYOMING	83									
COLORADO	84									
NEW MEXICO	85									
ARIZONA	86									
UTAH	87									
NEVADA	88									
WASHINGTON	91									
OREGON	92				3	8707	368	3	8707	368
CALIFORNIA	93									
HAWAII	95									
ALASKA	96				6	11960	505	6	11960	505
U.S. AVERAGE		3	10497	392	105	8685	345	108	8735	346

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE-1958

RED POLL

1958 CALVING YEAR

STATE	CODE	REGISTERED			NON-REGISTERED			ALL		
		NO.RECS.	MILK	FAT	NO.RECS.	MILK	FAT	NO.RECS.	MILK	FAT
MAINE	11				1	12960	489	1	12960	489
NEW HAMPSHIRE	12									
VERMONT	13									
MASSACHUSETTS	14									
RHODE ISLAND	15									
CONNECTICUT	16									
NEW YORK	21									
NEW JERSEY	22									
PENNSYLVANIA	23									
OHIO	31	23	9151	365	1	11220	422	24	9237	368
INDIANA	32									
ILLINOIS	33	14	6920	274	5	9650	381	19	7638	302
MICHIGAN	34				2	8895	350	2	8895	350
WISCONSIN	35	7	8084	325				7	8084	325
MINNESOTA	41	21	7230	287	4	9490	344	25	7592	296
IOWA	42	36	7422	321	2	7785	338	38	7441	322
MISSOURI	43				1	6760	293	1	6760	293
NORTH DAKOTA	45	10	6822	293	1	7740	354	11	6905	299
SOUTH DAKOTA	46									
NEBRASKA	47									
KANSAS	48									
DELAWARE	50									
MARYLAND	51									
VIRGINIA	52									
WEST VIRGINIA	54									
NORTH CAROLINA	55									
SOUTH CAROLINA	56									
GEORGIA	57									
FLORIDA	58									
KENTUCKY	61									
TENNESSEE	63									
ALABAMA	64									
MISSISSIPPI	65									
ARKANSAS	71									
LOUISIANA	72									
OKLAHOMA	73									
TEXAS	74									
MONTANA	81									
IDAHO	82									
WYOMING	83									
COLORADO	84									
NEW MEXICO	85									
ARIZONA	86									
UTAH	87									
NEVADA	88									
WASHINGTON	91				1	14110	700	1	14110	700
OREGON	92				1	9760	400	1	9760	400
CALIFORNIA	93									
HAWAII	95									
ALASKA	96									
U.S. AVERAGE		111	7668	316	19	9585	385	130	7948	326

305-DAY STANDARDIZED LACTATION AVERAGES BY STATE, BY CALVING YEAR, BY BREED, BY CALVING MONTH - 1958

UNITED STATES

1958 CALVING YEAR

AYRSHIRE

CALVING	REGISTERED			NON-REGISTERED			ALL		
MONTH	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	1500	9850	399	161	9026	362	1661	9770	396
FEBRUARY	1306	9828	401	161	8680	352	1467	9702	395
MARCH	1404	9662	392	187	8713	351	1591	9551	387
APRIL	997	9588	391	148	8461	341	1145	9443	384
MAY	813	9301	380	113	8530	342	926	9207	375
JUNE	763	9135	372	104	8179	333	867	9020	367
JULY	1210	9007	367	159	7585	313	1369	8842	361
AUGUST	2007	8967	369	207	7942	320	2214	8871	365
SEPTEMBER	2277	9363	386	268	8464	344	2545	9268	381
OCTOBER	2134	9781	403	222	8928	364	2356	9700	400
NOVEMBER	1621	9997	409	177	8699	353	1798	9869	403
DECEMBER	1327	9934	405	165	8913	358	1492	9821	400
YEAR AV.	17359	9548	391	2072	8522	345	19431	9439	386

GUERNSEY

CALVING	REGISTERED			NON-REGISTERED			ALL		
MONTH	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	6318	8749	418	2063	8267	384	8381	8631	410
FEBRUARY	5170	8729	417	1809	8092	375	6979	8564	406
MARCH	5603	8655	414	1939	8183	379	7542	8534	405
APRIL	4619	8554	410	1469	7999	372	6088	8420	401
MAY	4070	8392	404	1268	7850	364	5338	8263	394
JUNE	3967	8160	394	1378	7639	355	5345	8026	384
JULY	5263	8003	390	1656	7271	343	6919	7828	379
AUGUST	7101	7929	387	2348	7387	350	9449	7794	378
SEPTEMBER	7793	8200	402	2859	7718	366	10652	8071	392
OCTOBER	7687	8586	418	2856	7944	377	10543	8412	407
NOVEMBER	6881	8806	426	2444	8184	384	9325	8643	415
DECEMBER	6714	8898	426	2335	8197	380	9049	8717	414
YEAR AV.	71186	8479	410	24424	7905	370	95610	8332	400

HOLSTEIN

CALVING	REGISTERED			NON-REGISTERED			ALL		
MONTH	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	17414	12840	466	13094	11635	420	30508	12323	446
FEBRUARY	14115	12777	464	11111	11559	419	25226	12241	444
MARCH	14399	12737	464	11510	11476	416	25909	12177	443
APRIL	10706	12650	461	8367	11504	418	19073	12147	442
MAY	9541	12531	455	7711	11381	413	17252	12017	436
JUNE	9839	12296	449	8794	11201	409	18633	11779	430
JULY	14578	12110	444	13139	10997	402	27717	11583	424
AUGUST	22119	12126	445	18947	11014	404	41066	11613	426
SEPTEMBER	26783	12501	460	23103	11456	419	49886	12017	441
OCTOBER	26395	12860	474	23155	11765	429	49550	12349	453
NOVEMBER	21885	13028	478	18189	11884	433	40074	12509	457
DECEMBER	20952	13001	474	18238	11871	430	39190	12475	454
YEAR AV.	208726	12647	463	175358	11510	419	384084	12128	443

JERSEY

CALVING	REGISTERED			NON-REGISTERED			ALL		
MONTH	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	4429	8144	426	1136	7917	402	5565	8097	421
FEBRUARY	3874	8181	426	1044	8053	404	4918	8153	421
MARCH	3886	8162	426	1118	8084	408	5004	8145	422
APRIL	2906	8158	427	840	7825	395	3746	8084	420
MAY	2281	8020	420	691	7637	383	2972	7931	411
JUNE	1857	7563	394	697	7371	370	2554	7510	388
JULY	3414	7507	395	1015	7252	368	4429	7448	389
AUGUST	4629	7400	391	1491	7331	374	6120	7384	387
SEPTEMBER	5483	7650	406	1722	7450	382	7205	7602	400
OCTOBER	5336	7946	421	1611	7727	396	6947	7895	415
NOVEMBER	4472	8222	434	1334	7833	397	5806	8133	426
DECEMBER	4335	8370	438	1345	7878	398	5680	8253	429
YEAR AV.	46902	7949	418	14044	7693	390	60946	7890	411

BROWN SWISS

CALVING	REGISTERED			NON-REGISTERED			ALL		
MONTH	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	1238	11040	448	199	10234	410	1437	10928	443
FEBRUARY	1085	11272	459	167	10372	416	1252	11152	453
MARCH	1176	11034	448	176	10040	401	1352	10904	442
APRIL	953	10965	448	135	10067	403	1088	10854	443
MAY	783	10799	438	136	9960	398	919	10675	432
JUNE	773	10577	435	145	9972	400	918	10481	429
JULY	1073	10326	426	180	9802	399	1253	10251	422
AUGUST	1155	10294	429	214	9633	397	1369	10190	424
SEPTEMBER	1323	10593	442	254	9812	401	1577	10467	435
OCTOBER	1475	11178	465	260	10523	426	1735	11080	459
NOVEMBER	1314	11312	466	279	10504	427	1593	11171	460
DECEMBER	1299	11374	464	247	10788	435	1546	11280	460
YEAR AV.	13647	10923	449	2392	10178	412	16039	10812	443

M. SHORTHORN

CALVING	REGISTERED			NON-REGISTERED			ALL		
MONTH	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	299	8436	321	41	9062	374	340	8512	327
FEBRUARY	222	8847	336	37	9276	367	259	8908	340
MARCH	243	8472	321	33	9421	371	276	8585	327
APRIL	194	8722	330	29	9111	375	223	8773	336
MAY	145	8471	321	17	8802	354	162	8506	324
JUNE	148	8518	325	8	9196	388	156	8553	328
JULY	227	8221	313	29	8094	329	256	8207	315
AUGUST	283	7790	298	34	8480	336	317	7864	302
SEPTEMBER	291	7908	303	45	8588	350	336	7999	309
OCTOBER	324	8257	321	43	8883	364	367	8330	326
NOVEMBER	318	8538	331	39	8654	347	357	8550	333
DECEMBER	264	8862	341	32	9106	358	296	8888	343
YEAR AV.	2958	8393	321	387	8872	358	3345	8449	325

RED DANE

CALVING	REGISTERED			NON-REGISTERED			ALL		
MONTH	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY				8	7421	304	8	7421	304
FEBRUARY				3	11640	458	3	11640	458
MARCH				7	9069	358	7	9069	358
APRIL				2	7870	327	2	7870	327
MAY				5	7110	277	5	7110	277
JUNE				7	8220	330	7	8220	330
JULY				9	8232	342	9	8232	342
AUGUST	1	7070	272	19	8498	336	20	8427	333
SEPTEMBER	1	12040	449	18	9008	351	19	9168	356
OCTOBER				7	9844	415	7	9844	415
NOVEMBER				13	8543	337	13	8543	337
DECEMBER	1	12380	455	7	9659	358	8	9999	370
YEAR AV.	3	10497	392	105	8685	345	108	8735	346

RED POLL

CALVING	REGISTERED			NON-REGISTERED			ALL		
MONTH	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	8	8046	320	2	8400	351	10	8117	326
FEBRUARY	11	7826	318	3	8967	366	14	8071	328
MARCH	10	8035	331	1	11220	422	11	8325	339
APRIL	9	7502	300	2	9685	352	11	7899	309
MAY	4	8033	315	2	8840	325	6	8302	318
JUNE	8	7799	317	2	8820	389	10	8003	331
JULY	13	7114	282				13	7114	282
AUGUST	7	8120	346				7	8120	346
SEPTEMBER	9	7396	317				9	7396	317
OCTOBER	13	7956	343	4	10733	402	17	8609	357
NOVEMBER	12	7050	301	1	7430	316	13	7079	302
DECEMBER	7	7774	308	2	11075	520	9	8508	355
YEAR AV.	111	7668	316	19	9585	385	130	7948	326

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE-1959

ALL BREEDS

1959 CALVING YEAR

STATE	CODE	REGISTERED			NON-REGISTERED			ALL		
		NO.RECS.	MILK	FAT	NO.RECS.	MILK	FAT	NO.RECS.	MILK	FAT
MAINE	11	4927	10937	460	5344	10470	418	10271	10694	438
NEW HAMPSHIRE	12	4003	11124	457	1405	10458	419	5408	10951	447
VERMONT	13	9202	10638	454	7865	9764	395	17067	10235	427
MASSACHUSETTS	14	7674	11045	457	4880	10604	412	12554	10874	440
RHODE ISLAND	15	1050	10742	438	186	10703	407	1236	10736	433
CONNECTICUT	16	7247	11192	472	4410	10801	412	11657	11044	449
NEW YORK	21	54150	11827	451	23048	10968	402	77198	11570	437
NEW JERSEY	22	7256	11350	465	3196	11069	414	10452	11264	450
PENNSYLVANIA	23	58369	11080	433	43652	10474	402	102021	10821	420
OHIO	31	18884	10554	430	8070	11222	418	26954	10754	426
INDIANA	32	7019	10878	458	893	11892	456	7912	10993	458
ILLINOIS	33	15491	11451	457	11203	11317	426	26694	11394	444
MICHIGAN	34	17226	11615	450	22442	11189	419	39668	11374	432
WISCONSIN	35	17202	10920	437	17791	11631	435	34993	11281	436
MINNESOTA	41	12491	11606	449	28132	11702	427	40623	11673	434
IOWA	42	11844	11329	445	14024	11069	414	25868	11188	428
MISSOURI	43	3941	10333	438	2713	10807	423	6654	10526	432
NORTH DAKOTA	45	919	11070	427	1724	10742	398	2643	10856	408
SOUTH DAKOTA	46	699	12050	458	713	11542	401	1412	11794	429
NEBRASKA	47	2062	11144	452	853	11203	413	2915	11162	441
KANSAS	48	5388	10559	428	3971	11075	418	9359	10778	423
DELAWARE	50	1470	10334	415	1183	9152	355	2653	9807	389
MARYLAND	51	11500	10683	433	7600	10159	388	19100	10474	415
VIRGINIA	52	10643	10859	447	14694	10769	412	25337	10806	427
WEST VIRGINIA	54	2054	9632	387	1013	9693	373	3067	9653	382
NORTH CAROLINA	55	7038	9543	395	8658	9441	357	15696	9487	374
SOUTH CAROLINA	56	2819	8567	373	2663	8559	327	5482	8563	350
GEORGIA	57	2265	9409	390	2020	8951	350	4285	9193	374
FLORIDA	58	2785	8187	366	971	8769	385	3756	8337	371
KENTUCKY	61	2873	9704	403	1850	10460	393	4723	10000	399
TENNESSEE	63	1262	7857	391	10	7681	346	1272	7856	391
ALABAMA	64	1818	7395	339	5187	8000	306	7005	7843	314
MISSISSIPPI	65	1343	7450	345	766	7922	329	2109	7621	339
ARKANSAS	71	501	7280	315	535	7847	309	1036	7573	312
LOUISIANA	72	641	7446	350	44	8933	367	685	7542	351
OKLAHOMA	73	1324	9377	395	476	11033	417	1800	9815	401
TEXAS	74	3292	9034	406	3078	10681	397	6370	9830	401
MONTANA	81	616	11094	455	672	11866	433	1288	11497	443
IDAHO	82	3348	11026	463	2054	12211	470	5402	11477	466
WYOMING	83	174	13329	470	113	11887	411	287	12761	447
COLORADO	84	1647	11385	444	309	11972	451	1956	11478	445
NEW MEXICO	85	590	9383	439	105	12188	490	695	9807	447
ARIZONA	86	696	11756	459	1699	12468	455	2395	12261	456
UTAH	87	2647	11741	460	5744	12262	452	8391	12097	455
NEVADA	88	110	9987	519	50	12973	451	160	10920	498
WASHINGTON	91	7067	11192	483	7666	11981	474	14733	11603	478
OREGON	92	4897	9590	462	6383	10571	439	11280	10145	449
CALIFORNIA	93	2254	11963	514	734	13675	532	2988	12384	518
HAWAII	95	32	11075	373	3	11970	405	35	11152	376
ALASKA	96	10	14464	516	7	13253	519	17	13965	517
U.S. AVERAGE		344760	10985	441	282802	10864	411	627562	10930	428

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE-1959

AYRSHIRE

1959 CALVING YEAR

STATE	CODE	REGISTERED			NON-REGISTERED			ALL		
		NO.RECS.	MILK	FAT	NO.RECS.	MILK	FAT	NO.RECS.	MILK	FAT
MAINE	11	386	9811	400	101	8538	347	487	9547	389
NEW HAMPSHIRE	12	468	9715	398	41	9534	381	509	9700	397
VERMONT	13	1130	10024	406	298	8686	347	1428	9745	394
MASSACHUSETTS	14	759	10103	418	153	9089	376	912	9933	411
RHODE ISLAND	15	230	9781	395	15	8346	337	245	9693	391
CONNECTICUT	16	704	9466	387	109	8107	330	813	9284	379
NEW YORK	21	2950	9769	394	326	9016	355	3276	9694	390
NEW JERSEY	22	35	9683	394	5	10380	405	40	9771	395
PENNSYLVANIA	23	1707	8579	350	569	8081	331	2276	8454	345
OHIO	31	467	9467	377	64	9663	374	531	9490	376
INDIANA	32	144	8992	361	1	9440	352	145	8995	361
ILLINOIS	33	257	9362	392	24	9273	366	281	9354	389
MICHIGAN	34	172	10703	444	50	9268	368	222	10380	427
WISCONSIN	35	296	9163	376	19	10560	416	315	9247	378
MINNESOTA	41	447	9212	372	79	9620	374	526	9273	372
IOWA	42	482	9436	381	73	8633	346	555	9330	377
MISSOURI	43	14	10506	429	8	9200	362	22	10031	405
NORTH DAKOTA	45	3	3830	152				3	3830	152
SOUTH DAKOTA	46	33	11306	461	1	8970	347	34	11237	458
NEBRASKA	47	10	7129	304	15	7658	311	25	7446	308
KANSAS	48	829	9304	385	91	8709	363	920	9245	383
DELAWARE	50	212	8920	357	41	7881	315	253	8751	351
MARYLAND	51	761	9576	393	94	8877	356	855	9499	389
VIRGINIA	52	200	8344	340	76	8810	360	276	8473	346
WEST VIRGINIA	54	135	8486	342	15	7321	296	150	8370	337
NORTH CAROLINA	55	305	8936	355	86	7154	284	391	8544	339
SOUTH CAROLINA	56				2	6755	218	2	6755	218
GEORGIA	57	22	9475	359	6	9042	359	28	9382	359
FLORIDA	58	41	8802	338	4	10545	455	45	8957	348
KENTUCKY	61	14	8031	316	1	12860	442	15	8353	325
TENNESSEE	63									
ALABAMA	64	73	7318	278	45	6752	257	118	7102	270
MISSISSIPPI	65	34	6851	271	4	6553	263	38	6819	270
ARKANSAS	71	5	7358	301	2	6925	274	7	7234	293
LOUISIANA	72	1	2180	75				1	2180	75
OKLAHOMA	73	83	9585	385				83	9585	385
TEXAS	74	51	8653	332	5	8858	376	56	8672	336
MONTANA	81	34	11371	460	1	10340	432	35	11341	459
IDAHO	82	47	10343	415	1	7390	319	48	10281	413
WYOMING	83	4	8695	338				4	8695	338
COLORADO	84	81	10254	423				81	10254	423
NEW MEXICO	85									
ARIZONA	86	7	8887	338	4	8590	301	11	8779	324
UTAH	87	47	8485	333	8	10403	386	55	8764	341
NEVADA	88									
WASHINGTON	91	166	10126	410	67	9418	395	233	9922	406
OREGON	92	40	9980	400	38	10753	432	78	10356	416
CALIFORNIA	93	1	4710	180				1	4710	180
HAWAII	95									
ALASKA	96									
U.S. AVERAGE		13887	9464	385	2542	8640	348	16429	9336	379

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE-1959

GUERNSEY

1959 CALVING YEAR

STATE	CODE	REGISTERED NO.RECS.	REGISTERED MILK	REGISTERED FAT	NON-REGISTERED NO.RECS.	NON-REGISTERED MILK	NON-REGISTERED FAT	ALL NO.RECS.	ALL MILK	ALL FAT
MAINE	11	886	8694	426	739	7999	375	1625	8378	403
NEW HAMPSHIRE	12	628	8844	414	142	7841	364	770	8659	405
VERMONT	13	852	8735	417	545	7896	365	1397	8408	397
MASSACHUSETTS	14	1506	8816	425	590	8057	379	2096	8602	412
RHODE ISLAND	15	186	9424	451	5	8700	381	191	9405	449
CONNECTICUT	16	2496	9395	456	424	8301	382	2920	9236	445
NEW YORK	21	5696	8815	423	1221	8047	373	6917	8679	414
NEW JERSEY	22	2219	8890	435	275	7884	369	2494	8779	428
PENNSYLVANIA	23	9675	7945	380	5291	7520	348	14966	7795	369
OHIO	31	4201	8723	416	445	8356	379	4646	8688	412
INDIANA	32	2386	9132	450	93	9013	426	2479	9128	449
ILLINOIS	33	2548	8937	430	664	8219	380	3212	8789	420
MICHIGAN	34	2520	8801	429	1887	8053	384	4407	8481	410
WISCONSIN	35	4254	8530	411	2113	8360	396	6367	8473	406
MINNESOTA	41	1770	8468	410	2212	8094	386	3982	8260	397
IOWA	42	1439	8620	419	1369	8224	388	2808	8427	404
MISSOURI	43	975	8669	424	282	8152	383	1257	8553	415
NORTH DAKOTA	45	92	8481	409	131	8124	382	223	8271	393
SOUTH DAKOTA	46	78	8612	409	30	8045	367	108	8455	397
NEBRASKA	47	589	8745	427	82	8205	395	671	8679	423
KANSAS	48	622	8198	415	139	7714	374	761	8110	407
DELAWARE	50	457	7872	375	264	7013	313	721	7557	352
MARYLAND	51	2708	8468	414	857	7706	358	3565	8285	401
VIRGINIA	52	3749	8648	422	1737	7849	371	5486	8395	406
WEST VIRGINIA	54	393	7498	363	147	7756	358	540	7568	361
NORTH CAROLINA	55	2143	8115	392	940	6764	309	3083	7703	367
SOUTH CAROLINA	56	1781	7828	366	655	6893	301	2436	7577	348
GEORGIA	57	410	7826	382	372	6714	308	782	7297	347
FLORIDA	58	1233	7377	331	283	8210	377	1516	7533	340
KENTUCKY	61	459	7748	378	83	7505	348	542	7711	374
TENNESSEE	63	522	8574	415	3	6773	347	525	8563	414
ALABAMA	64	343	7178	325	496	6499	285	839	6777	301
MISSISSIPPI	65	666	7507	344	101	7394	332	767	7492	343
ARKANSAS	71	130	7327	331	61	5869	275	191	6861	313
LOUISIANA	72	383	7453	355	5	8080	379	388	7461	355
OKLAHOMA	73	340	7497	354	16	8638	366	356	7548	354
TEXAS	74	485	8621	400	118	7945	356	603	8489	392
MONTANA	81	113	9379	475	11	8052	366	124	9261	466
IDAHO	82	797	9226	442	142	9363	435	939	9247	441
WYOMING	83	10	8739	433	4	7945	336	14	8512	405
COLORADO	84	213	9022	435	47	8598	397	260	8946	428
NEW MEXICO	85	392	9449	449	23	10321	492	415	9497	451
ARIZONA	86	214	9880	466	117	10245	463	331	10009	465
UTAH	87	345	8250	395	204	8427	385	549	8316	391
NEVADA	88	2	5400	247	1	9800	407	3	6867	300
WASHINGTON	91	2019	9359	461	1151	9261	438	3170	9324	453
OREGON	92	1464	8944	442	1172	8615	405	2636	8798	425
CALIFORNIA	93	988	9618	469	117	8399	398	1105	9489	461
HAWAII	95									
ALASKA	96									
U.S. AVERAGE		68377	8561	413	27806	7933	370	96183	8379	400

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE-1959

HOLSTEIN

1959 CALVING YEAR

STATE	CODE	REGISTERED NO.RECS.	REGISTERED MILK	REGISTERED FAT	NON-REGISTERED NO.RECS.	NON-REGISTERED MILK	NON-REGISTERED FAT	ALL NO.RECS.	ALL MILK	ALL FAT
MAINE	11	2541	12961	493	3868	11408	431	6409	12024	456
NEW HAMPSHIRE	12	2328	12675	484	1021	11251	428	3349	12241	467
VERMONT	13	3976	12905	482	4791	10915	400	8767	11817	437
MASSACHUSETTS	14	4002	12867	485	3758	11331	421	7760	12123	454
RHODE ISLAND	15	513	12259	458	147	11476	421	660	12085	450
CONNECTICUT	16	3123	13475	503	3553	11476	422	6676	12411	460
NEW YORK	21	40708	12760	463	20500	11312	405	61208	12275	444
NEW JERSEY	22	4282	12891	481	2822	11459	418	7104	12322	456
PENNSYLVANIA	23	44490	12032	450	35967	11092	412	80457	11612	433
OHIO	31	9323	12472	449	6774	11730	421	16102	12160	437
INDIANA	32	3154	13124	484	754	12445	463	3908	12993	480
ILLINOIS	33	9844	12717	474	10086	11624	430	19930	12164	452
MICHIGAN	34	12108	12800	462	19329	11677	424	31437	12109	439
WISCONSIN	35	9539	12447	453	14906	12248	442	24445	12326	447
MINNESOTA	41	8283	12980	470	24883	12144	432	33166	12353	441
IOWA	42	6844	12916	469	11563	11605	419	18407	12092	438
MISSOURI	43	1769	12440	458	2101	11516	431	3870	11938	443
NORTH DAKOTA	45	553	12236	446	1527	11037	400	2080	11356	412
SOUTH DAKOTA	46	470	12964	458	636	11808	403	1106	12299	426
NEBRASKA	47	1117	13067	481	722	11686	417	1839	12525	456
KANSAS	48	2862	12279	455	3572	11440	425	6434	11814	438
DELAWARE	50	723	12530	458	813	10013	368	1536	11198	411
MARYLAND	51	6829	12169	453	6457	10571	393	13286	11392	424
VIRGINIA	52	5681	12852	473	12569	11254	418	18250	11751	435
WEST VIRGINIA	54	1126	11403	411	777	10350	378	1903	10973	397
NORTH CAROLINA	55	3263	11483	414	7048	10031	366	10311	10491	381
SOUTH CAROLINA	56	657	10907	384	1746	9151	330	2403	9631	345
GEORGIA	57	976	11765	423	1312	9973	364	2288	10737	389
FLORIDA	58	422	11280	397	254	10418	374	676	10956	388
KENTUCKY	61	1443	11704	425	1551	11018	399	2994	11348	412
TENNESSEE	63	2	11445	405	2	10175	394	4	10810	400
ALABAMA	64	239	10676	377	3188	9081	322	3427	9192	326
MISSISSIPPI	65	96	10876	386	290	10018	359	386	10232	366
ARKANSAS	71	124	9342	328	342	9049	329	466	9127	329
LOUISIANA	72	51	11341	411	21	11010	392	72	11245	405
OKLAHOMA	73	436	12814	465	411	11517	421	847	12184	443
TEXAS	74	773	12570	453	2527	11368	407	3300	11649	418
MONTANA	81	261	13524	476	624	12149	435	885	12555	447
IDAHO	82	1453	13915	501	1652	13025	479	3105	13441	489
WYOMING	83	152	13837	473	108	12072	415	260	13104	449
COLORADO	84	954	12898	458	240	12822	464	1194	12883	459
NEW MEXICO	85	59	13196	484	71	13450	501	130	13335	493
ARIZONA	86	403	13163	460	1555	12662	455	1958	12765	456
UTAH	87	1799	13495	490	5062	12795	460	6861	12979	467
NEVADA	88	9	14701	503	47	13151	454	56	13400	462
WASHINGTON	91	2760	14242	507	5462	13158	487	8222	13522	494
OREGON	92	712	13780	496	3442	12187	449	4154	12460	457
CALIFORNIA	93	841	15898	576	532	15239	557	1373	15643	569
HAWAII	95	32	11075	373	3	11970	405	35	11152	376
ALASKA	96	10	14464	516	1	12950	512	11	14326	515
U.S. AVERAGE		204120	12585	462	231387	11497	419	435507	12007	439

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE-1959

JERSEY

1959 CALVING YEAR

STATE	CODE	REGISTERED NO.RECS.	REGISTERED MILK	REGISTERED FAT	NON-REGISTERED NO.RECS.	NON-REGISTERED MILK	NON-REGISTERED FAT	ALL NO.RECS.	ALL MILK	ALL FAT
MAINE	11	1008	8435	440	600	7885	401	1608	8230	426
NEW HAMPSHIRE	12	530	8416	450	185	8487	430	715	8435	445
VERMONT	13	3016	8397	447	2133	7760	395	5149	8133	425
MASSACHUSETTS	14	1067	8340	440	318	7660	387	1385	8184	428
RHODE ISLAND	15	118	8134	419	18	7054	360	136	7991	411
CONNECTICUT	16	666	8669	456	262	7076	359	928	8219	428
NEW YORK	21	3312	7830	410	793	7632	387	4105	7792	406
NEW JERSEY	22	399	8885	476	73	8477	431	472	8822	469
PENNSYLVANIA	23	2056	7474	393	1604	7369	377	3660	7428	386
OHIO	31	3428	7634	395	598	7829	401	4026	7663	396
INDIANA	32	932	7920	407	40	8509	413	972	7945	408
ILLINOIS	33	1247	7829	404	172	7697	396	1419	7813	403
MICHIGAN	34	1567	7608	400	915	7731	395	2482	7653	398
WISCONSIN	35	1157	7984	424	490	7632	398	1647	7879	416
MINNESOTA	41	965	7873	415	502	7522	387	1467	7753	405
IOWA	42	1088	7737	410	427	7500	384	1515	7671	402
MISSOURI	43	862	8011	427	273	8261	408	1135	8071	422
NORTH DAKOTA	45	8	6539	351	13	6781	360	21	6689	356
SOUTH DAKOTA	46	24	7938	459				24	7938	459
NEBRASKA	47	110	8027	430	8	8140	413	118	8035	429
KANSAS	48	576	7618	405	77	7159	367	653	7564	401
DELAWARE	50	67	7581	394	54	7662	404	121	7617	399
MARYLAND	51	862	7152	375	146	7192	359	1008	7158	373
VIRGINIA	52	861	8057	418	275	7624	391	1136	7952	412
WEST VIRGINIA	54	373	7096	362	72	7081	362	445	7093	362
NORTH CAROLINA	55	1264	7147	362	526	6685	317	1790	7011	349
SOUTH CAROLINA	56	304	7360	378	111	7188	351	415	7314	371
GEORGIA	57	799	7289	370	286	7149	334	1085	7252	360
FLORIDA	58	1073	7834	393	420	8081	395	1493	7904	394
KENTUCKY	61	863	7405	381	180	7291	362	1043	7385	378
TENNESSEE	63	738	7341	374	5	7228	325	743	7340	374
ALABAMA	64	1147	6773	340	1376	6062	277	2523	6385	305
MISSISSIPPI	65	546	6809	343	365	6427	305	911	6656	328
ARKANSAS	71	206	5869	297	113	5277	260	319	5659	284
LOUISIANA	72	206	6495	327	18	6747	335	224	6515	327
OKLAHOMA	73	341	7097	372	46	7564	399	387	7152	375
TEXAS	74	1844	7585	390	414	7320	348	2258	7536	383
MONTANA	81	105	7454	411	32	7986	428	137	7578	415
IDAHO	82	909	8223	435	242	8389	427	1151	8258	433
WYOMING	83									
COLORADO	84	194	7412	401	7	6921	361	201	7395	399
NEW MEXICO	85	139	7580	394	11	7945	417	150	7607	395
ARIZONA	86	49	8219	418	4	9648	355	53	8327	413
UTAH	87	449	7762	404	449	8075	403	898	7918	404
NEVADA	88	99	9652	525	1	11100	480	100	9666	525
WASHINGTON	91	1905	8797	478	899	8630	451	2804	8743	470
OREGON	92	2433	8681	471	1680	8619	442	4113	8656	459
CALIFORNIA	93	379	9260	492	85	11152	562	464	9607	505
HAWAII	95									
ALASKA	96									
U.S. AVERAGE		42291	7866	412	17318	7628	384	59609	7797	404

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE-1959

BROWN SWISS

1959 CALVING YEAR

STATE	CODE	REGISTERED NO.RECS.	REGISTERED MILK	REGISTERED FAT	NON-REGISTERED NO.RECS.	NON-REGISTERED MILK	NON-REGISTERED FAT	ALL NO.RECS.	ALL MILK	ALL FAT
MAINE	11	26	11392	467	8	10908	457	34	11278	465
NEW HAMPSHIRE	12	28	10223	403	10	8617	356	38	9801	390
VERMONT	13	197	11092	465	91	10895	454	288	11029	462
MASSACHUSETTS	14	298	10471	442	51	9726	399	349	10362	435
RHODE ISLAND	15	3	9100	355	1	8070	329	4	8843	349
CONNECTICUT	16	258	12158	522	58	9682	393	316	11704	498
NEW YORK	21	1413	10962	454	194	10046	412	1607	10851	449
NEW JERSEY	22	321	11042	464	21	9667	385	342	10957	459
PENNSYLVANIA	23	423	10421	430	209	9286	383	632	10046	415
OHIO	31	1305	10993	457	183	11065	456	1488	11002	457
INDIANA	32	352	11547	476	5	9698	392	357	11522	475
ILLINOIS	33	1382	11210	463	235	10012	415	1617	11036	456
MICHIGAN	34	750	10981	439	154	10906	436	904	10968	438
WISCONSIN	35	1633	11003	448	244	10655	429	1877	10958	446
MINNESOTA	41	801	11082	447	429	10104	399	1230	10741	430
IOWA	42	1625	10741	438	556	10174	413	2181	10596	431
MISSOURI	43	204	10276	414	41	10303	436	245	10281	418
NORTH DAKOTA	45	199	10194	423	30	10739	435	229	10265	424
SOUTH DAKOTA	46	88	12125	517	42	10446	401	130	11583	479
NEBRASKA	47	168	10397	430	23	10000	406	191	10349	427
KANSAS	48	305	10016	427	78	7664	326	383	9537	406
DELAWARE	50	11	12348	508	4	9568	371	15	11607	472
MARYLAND	51	281	10349	435	44	10292	433	325	10341	435
VIRGINIA	52	127	10549	446	24	10661	448	151	10567	446
WEST VIRGINIA	54	27	7640	306	1	7720	311	28	7643	306
NORTH CAROLINA	55	62	8589	356	58	9471	400	120	9015	377
SOUTH CAROLINA	56	77	10460	417	147	10011	391	224	10165	400
GEORGIA	57	58	10150	401	43	9103	394	101	9704	398
FLORIDA	58	16	11044	445	10	10843	474	26	10967	456
KENTUCKY	61	91	9937	401	34	8944	367	125	9666	392
TENNESSEE	63									
ALABAMA	64	16	7977	295	58	8414	331	74	8319	323
MISSISSIPPI	65	1	10980	452				1	10980	452
ARKANSAS	71	5	12132	500	5	8710	356	10	10421	428
LOUISIANA	72									
OKLAHOMA	73	71	8699	346	3	10697	427	74	8780	350
TEXAS	74	117	10691	417	7	11430	458	124	10733	419
MONTANA	81	67	11762	478	2	9830	397	69	11706	476
IDAHO	82	75	10018	418	13	11418	493	88	10225	429
WYOMING	83	8	11725	529	1	7690	284	9	11277	501
COLORADO	84	172	11344	461	13	10640	445	185	11294	460
NEW MEXICO	85									
ARIZONA	86	23	12953	506	19	11656	452	42	12366	482
UTAH	87	7	9943	389	18	11297	460	25	10918	440
NEVADA	88				1	9630	361	1	9630	361
WASHINGTON	91	174	11792	487	27	12464	522	201	11882	491
OREGON	92	149	10877	451	28	10711	446	177	10851	450
CALIFORNIA	93	45	12820	531				45	12820	531
HAWAII	95									
ALASKA	96									
U.S. AVERAGE		13459	10907	449	3223	10127	412	16682	10756	442

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE-1959

MILKING SHORTHORN

1959 CALVING YEAR

STATE	CODE	REGISTERED			NON-REGISTERED			ALL		
		NO.RECS.	MILK	FAT	NO.RECS.	MILK	FAT	NO.RECS.	MILK	FAT
MAINE	11	80	8304	327	28	8412	333	108	8332	328
NEW HAMPSHIRE	12	21	8295	327	6	7630	287	27	8147	318
VERMONT	13	31	9838	369	2	10065	461	33	9852	375
MASSACHUSETTS	14	42	7221	275	10	9133	383	52	7588	296
RHODE ISLAND	15									
CONNECTICUT	16				3	10207	414	3	10207	414
NEW YORK	21	71	7900	300	14	8912	336	85	8067	306
NEW JERSEY	22									
PENNSYLVANIA	23	18	9568	372	10	8141	309	28	9059	350
OHIO	31	133	8767	326	3	10193	439	136	8798	329
INDIANA	32	51	8433	326				51	8433	326
ILLINOIS	33	201	8279	315	18	8214	320	219	8274	315
MICHIGAN	34	109	8457	311	17	9174	351	126	8554	316
WISCONSIN	35	323	8990	346	16	7923	316	339	8939	344
MINNESOTA	41	217	8377	317	21	9246	361	238	8454	321
IOWA	42	338	8198	314	32	8475	327	370	8222	315
MISSOURI	43	117	9535	379	7	9871	378	124	9554	379
NORTH DAKOTA	45	53	8645	325	23	8316	318	76	8546	323
SOUTH DAKOTA	46				1	11760	421	1	11760	421
NEBRASKA	47	68	7817	304	3	12047	487	71	7995	311
KANSAS	48	194	7701	312	14	7279	283	208	7672	310
DELAWARE	50				7	8544	335	7	8544	335
MARYLAND	51	59	7770	309	2	5875	243	61	7708	307
VIRGINIA	52	25	7611	302	12	10303	397	37	8484	333
WEST VIRGINIA	54				1	9850	464	1	9850	464
NORTH CAROLINA	55	1	10610	462				1	10610	462
SOUTH CAROLINA	56				2	8750	362	2	8750	362
GEORGIA	57				1	9280	381	1	9280	381
FLORIDA	58									
KENTUCKY	61	3	9647	386	1	8950	327	4	9473	372
TENNESSEE	63									
ALABAMA	64				12	7755	313	12	7755	313
MISSISSIPPI	65				6	7337	318	6	7337	318
ARKANSAS	71	31	7413	295	12	7636	352	43	7475	311
LOUISIANA	72									
OKLAHOMA	73	53	8415	320				53	8415	320
TEXAS	74	22	7424	271	6	8107	348	28	7570	287
MONTANA	81	36	7981	310	2	9330	379	38	8052	313
IDAHO	82	67	9430	353	4	12035	500	71	9577	362
WYOMING	83									
COLORADO	84	33	9243	336	2	15645	503	35	9609	346
NEW MEXICO	85									
ARIZONA	86									
UTAH	87				3	10703	452	3	10703	452
NEVADA	88									
WASHINGTON	91	43	9375	352	60	9826	415	103	9638	388
OREGON	92	99	9235	343	20	10624	452	119	9468	361
CALIFORNIA	93									
HAWAII	95									
ALASKA	96									
U.S. AVERAGE		2539	8477	325	381	8968	360	2920	8541	330

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE-1959

RED DANE

1959 CALVING YEAR

STATE	CODE	REGISTERED NO.RECS.	MILK	FAT	NON-REGISTERED NO.RECS.	MILK	FAT	ALL NO.RECS.	MILK	FAT
MAINE	11									
NEW HAMPSHIRE	12									
VERMONT	13				5	8984	402	5	8984	402
MASSACHUSETTS	14									
RHODE ISLAND	15									
CONNECTICUT	16									
NEW YORK	21									
NEW JERSEY	22									
PENNSYLVANIA	23									
OHIO	31									
INDIANA	32									
ILLINOIS	33									
MICHIGAN	34				87	9147	359	87	9147	359
WISCONSIN	35									
MINNESOTA	41				2	10395	437	2	10395	437
IOWA	42									
MISSOURI	43				1	3960	147	1	3960	147
NORTH DAKOTA	45									
SOUTH DAKOTA	46									
NEBRASKA	47									
KANSAS	48									
DELAWARE	50									
MARYLAND	51									
VIRGINIA	52				1	8750	438	1	8750	438
WEST VIRGINIA	54									
NORTH CAROLINA	55									
SOUTH CAROLINA	56									
GEORGIA	57									
FLORIDA	58									
KENTUCKY	61									
TENNESSEE	63									
ALABAMA	64				12	7998	320	12	7998	320
MISSISSIPPI	65									
ARKANSAS	71									
LOUISIANA	72									
OKLAHOMA	73									
TEXAS	74									
MONTANA	81									
IDAHO	82									
WYOMING	83									
COLORADO	84									
NEW MEXICO	85									
ARIZONA	86									
UTAH	87									
NEVADA	88									
WASHINGTON	91									
OREGON	92				3	10220	423	3	10220	423
CALIFORNIA	93									
HAWAII	95									
ALASKA	96				6	13303	520	6	13303	520
U.S. AVERAGE					117	9236	367	117	9236	367

305-DAY STANDARDIZED LACTATION AVERAGES BY BREED, BY CALVING YEAR, BY STATE-1959

RED POLL

1959 CALVING YEAR

STATE	CODE	REGISTERED NO.RECS.	REGISTERED MILK	REGISTERED FAT	NON-REGISTERED NO.RECS.	NON-REGISTERED MILK	NON-REGISTERED FAT	ALL NO.RECS.	ALL MILK	ALL FAT
MAINE	11									
NEW HAMPSHIRE	12									
VERMONT	13									
MASSACHUSETTS	14									
RHODE ISLAND	15									
CONNECTICUT	16				1	7930	374	1	7930	374
NEW YORK	21									
NEW JERSEY	22									
PENNSYLVANIA	23				2	11010	402	2	11010	402
OHIO	31	22	9572	379	3	9290	403	25	9538	382
INDIANA	32									
ILLINOIS	33	12	7987	337	4	9355	378	16	8329	347
MICHIGAN	34				3	10563	368	3	10563	368
WISCONSIN	35				3	7300	293	3	7300	293
MINNESOTA	41	8	7745	300	4	9080	314	12	8190	304
IOWA	42	28	6988	293	4	8333	337	32	7156	298
MISSOURI	43									
NORTH DAKOTA	45	11	6900	304				11	6900	304
SOUTH DAKOTA	46	6	4613	197	3	6293	231	9	5173	208
NEBRASKA	47									
KANSAS	48									
DELAWARE	50									
MARYLAND	51									
VIRGINIA	52									
WEST VIRGINIA	54									
NORTH CAROLINA	55									
SOUTH CAROLINA	56									
GEORGIA	57									
FLORIDA	58									
KENTUCKY	61									
TENNESSEE	63									
ALABAMA	64									
MISSISSIPPI	65									
ARKANSAS	71									
LOUISIANA	72									
OKLAHOMA	73									
TEXAS	74				1	8630	305	1	8630	305
MONTANA	81									
IDAHO	82									
WYOMING	83									
COLORADO	84									
NEW MEXICO	85									
ARIZONA	86									
UTAH	87									
NEVADA	88									
WASHINGTON	91									
OREGON	92									
CALIFORNIA	93									
HAWAII	95									
ALASKA	96									
U.S. AVERAGE		87	7674	316	28	8785	339	115	7945	322

305-DAY STANDARDIZED LACTATION AVERAGES BY STATE, BY CALVING YEAR, BY BREED, BY CALVING MONTH - 1959

UNITED STATES

1959 CALVING YEAR

AYRSHIRE

CALVING	REGISTERED			NON-REGISTERED			ALL		
MONTH	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	1184	9996	404	197	8928	357	1381	9844	397
FEBRUARY	1040	9864	399	162	9109	361	1202	9763	394
MARCH	1183	9803	394	224	8985	359	1407	9673	388
APRIL	879	9726	393	150	8457	339	1029	9541	385
MAY	718	9354	378	124	8510	338	842	9230	372
JUNE	712	9150	368	164	8367	338	876	9003	362
JULY	1118	8720	354	170	8193	329	1288	8650	351
AUGUST	1468	8662	354	282	8103	326	1750	8572	349
SEPTEMBER	1708	9114	373	343	8555	351	2051	9021	369
OCTOBER	1454	9570	393	280	8930	360	1734	9467	387
NOVEMBER	1243	9843	403	241	8725	354	1484	9662	395
DECEMBER	1180	9976	406	205	8804	352	1385	9803	398
YEAR AV.	13887	9464	385	2542	8640	348	16429	9336	379

GUERNSEY

CALVING	REGISTERED			NON-REGISTERED			ALL		
MONTH	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	6309	9021	432	2202	8321	384	8511	8840	419
FEBRUARY	5523	8910	425	1918	8216	378	7441	8731	413
MARCH	5874	8847	421	2072	8167	376	7946	8669	409
APRIL	4785	8696	416	1716	8093	372	6501	8537	404
MAY	4052	8548	409	1458	7905	363	5510	8377	397
JUNE	4107	8254	396	1544	7570	352	5651	8067	384
JULY	5415	8023	389	1973	7479	349	7388	7878	379
AUGUST	6327	7868	384	2778	7431	351	9105	7735	374
SEPTEMBER	6665	8028	393	3245	7687	366	9910	7917	384
OCTOBER	6382	8534	417	3141	8042	382	9523	8372	405
NOVEMBER	6401	8959	433	2972	8111	381	9373	8690	417
DECEMBER	6537	8961	431	2787	8170	378	9324	8724	415
YEAR AV.	68377	8561	413	27806	7933	370	96183	8379	400

HOLSTEIN

CALVING	REGISTERED			NON-REGISTERED			ALL		
MONTH	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	18194	13040	475	15899	11780	427	34093	12453	453
FEBRUARY	14861	12942	472	14119	11678	422	28980	12326	448
MARCH	15217	12799	467	15052	11584	420	30269	12195	444
APRIL	11290	12680	463	11713	11545	419	23003	12102	440
MAY	9218	12527	457	10125	11348	412	19343	11910	434
JUNE	10527	12191	446	11818	11237	410	22345	11686	427
JULY	15882	12060	444	17363	11035	403	33245	11525	423
AUGUST	22983	11994	442	26437	11009	403	49420	11467	421
SEPTEMBER	24869	12222	451	30677	11283	414	55546	11703	430
OCTOBER	23121	12733	471	29398	11735	430	52519	12174	448
NOVEMBER	20453	12964	479	25491	11821	431	45944	12330	452
DECEMBER	17505	12955	476	23295	11835	429	40800	12315	449
YEAR AV.	204120	12585	462	231387	11497	419	435507	12007	439

JERSEY

CALVING	REGISTERED			NON-REGISTERED			ALL		
MONTH	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	4205	8405	437	1273	8099	404	5478	8334	429
FEBRUARY	3811	8374	436	1130	8085	402	4941	8308	428
MARCH	3814	8396	438	1306	8096	402	5120	8319	429
APRIL	2878	8224	429	936	7843	390	3814	8131	419
MAY	2458	7924	414	763	7516	373	3221	7827	404
JUNE	2303	7690	401	867	7328	364	3170	7591	391
JULY	3042	7142	372	1243	7178	361	4285	7153	369
AUGUST	3889	7056	369	1941	7148	364	5830	7086	367
SEPTEMBER	4217	7197	382	2161	7391	379	6378	7263	381
OCTOBER	4036	7622	404	2027	7601	388	6063	7615	398
NOVEMBER	3741	7958	421	1860	7634	385	5601	7850	409
DECEMBER	3897	8333	437	1811	7882	394	5708	8190	423
YEAR AV.	42291	7866	412	17318	7628	384	59609	7797	404

BROWN SWISS

CALVING	REGISTERED			NON-REGISTERED			ALL		
MONTH	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	1235	11447	466	235	10623	427	1470	11315	460
FEBRUARY	1042	11190	455	229	10358	417	1271	11040	448
MARCH	1213	11150	452	242	10450	421	1455	11033	447
APRIL	961	11191	456	200	10072	401	1161	10998	446
MAY	812	10981	448	176	10117	404	988	10827	440
JUNE	797	10546	433	149	9686	393	946	10411	427
JULY	1082	10267	425	231	9591	393	1313	10148	419
AUGUST	1266	10261	426	314	9787	407	1580	10167	422
SEPTEMBER	1355	10484	438	373	9611	398	1728	10296	430
OCTOBER	1241	10915	456	377	10384	425	1618	10791	449
NOVEMBER	1212	11213	464	364	10274	419	1576	10996	454
DECEMBER	1243	11223	460	333	10438	420	1576	11057	452
YEAR AV.	13459	10907	449	3223	10127	412	16682	10756	442

M. SHORTHORN

CALVING	REGISTERED			NON-REGISTERED			ALL		
MONTH	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	275	8954	338	44	8439	331	319	8883	337
FEBRUARY	206	8664	326	21	9105	369	227	8705	330
MARCH	219	8958	338	31	9045	360	250	8969	341
APRIL	166	8802	333	21	9034	362	187	8828	337
MAY	138	8729	332	30	9242	364	168	8820	338
JUNE	108	8310	317	25	9854	386	133	8600	330
JULY	178	8371	323	20	9850	398	198	8521	330
AUGUST	250	8025	310	42	8730	363	292	8127	317
SEPTEMBER	250	7975	310	27	8590	345	277	8034	313
OCTOBER	248	8269	322	37	8681	351	285	8323	325
NOVEMBER	247	8223	322	41	9004	375	288	8334	330
DECEMBER	254	8577	330	42	8915	352	296	8625	333
YEAR AV.	2539	8477	325	381	8968	360	2920	8541	330

RED DANE

CALVING	REGISTERED			NON-REGISTERED			ALL		
MONTH	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY				7	9520	373	7	9520	373
FEBRUARY				2	9505	359	2	9505	359
MARCH				6	9322	386	6	9322	386
APRIL				10	9726	386	10	9726	386
MAY				3	10587	420	3	10587	420
JUNE				3	9507	368	3	9507	368
JULY				9	10279	425	9	10279	425
AUGUST				16	8244	327	16	8244	327
SEPTEMBER				18	9700	376	18	9700	376
OCTOBER				14	8663	355	14	8663	355
NOVEMBER				18	9014	361	18	9014	361
DECEMBER				11	8995	346	11	8995	346
YEAR AV.				117	9236	367	117	9236	367

RED POLL

CALVING	REGISTERED			NON-REGISTERED			ALL		
MONTH	NUMBER	MILK	FAT	NUMBER	MILK	FAT	NUMBER	MILK	FAT
JANUARY	11	7074	282	3	7523	263	14	7170	278
FEBRUARY	5	9488	382	3	8217	347	8	9011	369
MARCH	4	9003	390	2	10170	447	6	9392	409
APRIL	7	8371	331	2	6895	293	9	8043	323
MAY	2	7560	294	1	10520	392	3	8547	326
JUNE	4	7060	311	2	9155	361	6	7758	328
JULY	8	8881	349	2	9020	321	10	8909	344
AUGUST	2	4880	243				2	4880	243
SEPTEMBER	15	7926	329				15	7926	329
OCTOBER	8	7114	293	3	8637	302	11	7529	295
NOVEMBER	10	6833	283	6	9243	338	16	7737	303
DECEMBER	11	7225	309	4	9100	369	15	7725	325
YEAR AV.	87	7674	316	28	8785	339	115	7945	322

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Growth Through Agricultural Progress

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA
OWNER SAMPLER
WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter
ARS-44-108
(Vol. 37, No. 9)

OCTOBER 1961

18,291 Sire Records Compiled

During the operation of the automated DHIA sire-proving procedures in July and August, sire records were compiled on 18,291 sires used in DHIA herds.

In this operation the Master File of DHIA lactation records was updated with correctly reported records. The sire records compiled, therefore, include all usable records that were reported up to May 1, 1961.

The following sire records were compiled:

1.	New Proved-Sire Records*	4,058
2.	Proved-Sire Records Retabulated*	6,037
3.	Daughter-Average Records*	8,196
	Total	18,291

4. DHIA Proved-Sire and Daughter-Average List is now being printed in two volumes. The List should be available for mailing in late November. (List will be distributed to those on the mailing list receiving the Dairy-Herd-Improvement Letter.)

On the following pages are various tabulations of the summaries of the proved-sire records compiled.

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*Copies have been sent to the State Colleges.

NOV 10 1961

TABLE 1.--NUMBER OF PROVED-SIRE RECORDS TABULATED IN 1961, BY STATES AND BREED *

STATE	AYRSHIRE	GUERNSEY	HOLSTEIN	JERSEY	BR.SWISS	SHORTHORN	RED DANE	OTHER	RED POLL	TOTAL
ALABAMA --------	1	4	91	22	5	2				125
ALASKA ---------										
ARIZONA --------	1	5	79	1	5					91
ARKANSAS -------	1	3	16	6	2	2				30
CALIFORNIA -----	9	10	49	20	14					102
COLORADO -------	10	10	103	9	34	1				167
CONNECTICUT ----	62	57	409	34	45	2				609
DELAWARE -------	23	15	112	5	9					164
FLORIDA --------	3	32	81	18	9					143
GEORGIA --------	6	2	178	26	22					234
HAWAII ---------			1							1
IDAHO ----------	6	16	107	14	18	9				170
ILLINOIS -------	27	63	611	39	143	29				912
INDIANA --------	21	43	304	39	60	6				473
IOWA -----------	49	32	515	38	148	39				821
KANSAS ---------	46	13	234	11	54	20				378
KENTUCKY -------	3	12	136	21	15	1				188
LOUISIANA ------		7	24	8	1					40
MAINE ----------	27	28	203	20	11	6				295
MARYLAND -------	67	69	582	26	74	8				826
MASSACHUSETTS --	66	53	423	37	67	7				653
MICHIGAN -------	23	51	940	57	102	18	5			1,196
MINNESOTA ------	34	32	545	31	95	30				767
MISSISSIPPI ----	5	17	24	15	2					63
MISSOURI -------	3	20	177	24	33	12				269
MONTANA --------	2		25	2	15	3				47
NEBRASKA -------	6	17	156	4	44	9				236
NEVADA ---------			2	1						3
NEW HAMPSHIRE --	30	15	202	18	14	5				284
NEW JERSEY -----	12	60	363	25	70					530
NEW MEXICO -----		13	23	2	1					39
NEW YORK -------	168	104	1,981	63	143	21				2,500
NORTH CAROLINA -	21	39	292	21	14	2				389
NORTH DAKOTA ---		6	57	1	33	8				105
OHIO -----------	41	32	492	71	122	17				775
OKLAHOMA -------	15	4	62	15	22	5				123
OREGON ---------	1	23	60	46	14	2				166
PENNSYLVANIA ---	103	197	1,509	79	73	12				1,973
RHODE ISLAND ---	22	8	87	9	2					128
SOUTH CAROLINA -	6	18	100	9	4					137
SOUTH DAKOTA ---	7	2	71	2	25					107
TENNESSEE ------	1	17	35	36	3					92
TEXAS ----------	6	9	161	29	45	2				252
UTAH -----------	3	7	118	15	2					145
VERMONT --------	74	37	396	86	43	4				640
VIRGINIA -------	25	66	465	16	37	7				616
WASHINGTON -----	8	30	185	43	21	3				290
WEST VIRGINIA --	9	8	195	12	9					233
WISCONSIN ------	22	87	1,199	38	157	38				1,541
WYOMING --------			11		5	1				17
PUERTO RICO ----			1							1
TOTAL **	498	684	7,411	602	689	206	5			10,095

* THE NUMBER LISTED FOR EACH STATE FREQUENTLY INCLUDES 1 OR MORE SIRES PROVED WITH RECORDS FROM SOME OTHER STATE AS WELL AS FROM THE STATE INDICATED.

**THE TOTALS GIVEN HERE OMIT DUPLICATIONS OF SIRES

TABLE 2.--TOTAL NUMBER OF DAUGHTER-AVERAGE TABULATIONS OF DHIA SIRES COMPILED IN 1961, BY BREED

AYRSHIRE	GUERNSEY	HOLSTEIN	JERSEY	BROWN SWISS	SHORTHORN	RED DANE	OTHER	RED POLL	TOTAL
307	1,046	4,803	1,539	324	169	8			8,196

TABLE 3.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF THE DAUGHTERS OF SIRES PROVED IN 1961, AND THE DAMS OF THESE DAUGHTERS, GROUPED ACCORDING TO BUTTERFAT PRODUCTION RANGE OF THE DAMS TO WHICH THEY WERE MATED

BUTTERFAT PRODUCTION RANGE OF DAMS POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAM-AND-DAUGHTER PAIRS NUMBER	AVERAGE PRODUCTION					
					DAMS			DAUGHTERS		
					MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS	MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS
UNDER 275-----	74	65	9	634	6,646	3.8	255	7,981	3.9	311
275 - 299-----	131	101	30	1,208	7,373	3.9	289	8,015	4.0	319
300 - 324-----	228	150	78	2,279	8,096	3.9	314	8,557	3.9	337
325 - 349-----	442	303	139	4,573	8,462	4.0	338	8,881	4.1	361
350 - 374-----	799	506	293	8,721	9,473	3.8	363	9,758	3.9	381
375 - 399-----	1,143	646	497	13,986	10,063	3.9	368	10,124	3.9	397
400 - 424-----	1,406	753	653	18,913	10,876	3.8	413	10,846	3.9	419
425 - 449-----	1,673	859	814	46,454	11,666	3.7	437	11,511	3.8	440
450 - 474-----	1,545	726	819	51,975	12,383	3.7	462	12,147	3.8	460
475 - 499-----	1,122	458	664	21,685	13,047	3.7	486	12,638	3.8	479
500 - 524-----	737	273	464	10,577	13,637	3.7	511	13,050	3.8	495
525 - 549-----	432	116	316	5,549	14,222	3.8	536	13,353	3.8	507
550 - 574-----	204	52	152	2,254	14,939	3.8	560	13,915	3.8	531
575 - 599-----	81	21	60	844	15,419	3.8	586	14,447	3.8	555
600 - 624-----	50	11	39	469	15,782	3.9	609	14,430	3.9	559
625 - 649-----	15	2	13	106	15,569	4.1	632	14,083	4.0	568
OVER 650-----	13	1	12	127	18,479	4.1	764	14,065	4.1	574
TOTAL OR AVERAGE-----	10,095	5,043	5,052	190,354	11,535	3.8	436	11,377	3.8	437

TABLE 4.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF THE DAUGHTERS OF SIRES PROVED IN 1961, AND THE DAMS OF THESE DAUGHTERS, GROUPED ACCORDING TO MILK PRODUCTION RANGE OF THE DAMS TO WHICH THEY WERE MATED

MILK PRODUCTION RANGE OF DAMS POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAM-AND-DAUGHTER PAIRS NUMBER	AVERAGE PRODUCTION					
					DAMS			DAUGHTERS		
					MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS	MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS
UNDER 6500---	109	75	34	997	6,079	4.9	298	6,676	4.8	324
6500 - 7499---	359	205	154	3,646	7,036	4.8	338	7,292	4.8	351
7500 - 8499---	732	317	415	8,203	8,012	4.7	374	7,979	4.7	373
8500 - 9499---	730	326	404	7,933	8,993	4.3	386	8,966	4.3	387
9500 -10499---	943	501	442	11,869	10,038	3.9	389	10,240	3.9	400
10500-11499---	1,486	789	697	21,124	11,033	3.7	408	11,196	3.8	421
11500-12499---	2,080	980	1,100	58,983	12,026	3.6	438	11,943	3.7	443
12500-13499---	1,920	782	1,138	54,333	12,965	3.6	470	12,686	3.7	469
13500-14499---	1,119	341	778	16,443	13,940	3.6	504	13,283	3.7	489
14500-15499---	427	116	311	4,910	14,908	3.6	537	13,920	3.7	513
15500-16499---	141	32	109	1,501	15,860	3.6	573	14,724	3.7	544
OVER 16500---	49	8	41	412	17,616	3.6	629	15,236	3.6	553
TOTAL OR AVERAGE-----	10,095	4,472	5,623	190,354	11,535	3.8	436	11,377	3.8	437

TABLE 5.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF THE DAUGHTERS OF SIRES PROVED IN 1961, AND THE DAMS OF THESE DAUGHTERS, GROUPED ACCORDING TO BUTTERFAT PRODUCTION RANGE OF THESE DAUGHTERS

BUTTERFAT PRODUCTION RANGE OF DAUGHTERS POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAM-AND-DAUGHTER PAIRS NUMBER	AVERAGE PRODUCTION					
					DAMS			DAUGHTERS		
					MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS	MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS
UNDER 275-----	98	11	87	782	7,785	4.0	313	6,209	4.0	249
275 - 299-----	143	29	114	1,313	8,260	4.0	332	7,116	4.1	288
300 - 324-----	278	60	218	2,730	8,932	3.9	352	7,961	3.9	314
325 - 349-----	527	134	393	5,475	9,262	4.0	370	8,390	4.0	337
350 - 374-----	843	228	615	9,729	9,922	3.9	390	9,147	4.0	363
375 - 399-----	1,134	393	741	13,827	10,584	3.8	406	9,983	3.9	387
400 - 424-----	1,394	579	815	22,338	11,198	3.8	424	10,782	3.8	412
425 - 449-----	1,495	742	753	32,856	11,719	3.7	438	11,511	3.8	437
450 - 474-----	1,404	796	608	44,390	12,272	3.7	455	12,253	3.8	462
475 - 499-----	1,054	687	367	27,841	12,650	3.7	472	12,882	3.8	486
500 - 524-----	751	568	183	15,742	13,006	3.7	483	13,548	3.8	511
525 - 549-----	437	344	93	6,214	13,425	3.7	501	14,136	3.8	536
550 - 574-----	242	199	43	3,777	13,738	3.7	514	14,645	3.8	561
575 - 599-----	127	113	14	1,470	13,896	3.7	520	15,332	3.8	586
600 - 624-----	57	52	5	612	14,349	3.7	538	15,871	3.8	610
625 - 649-----	33	31	2	380	14,269	3.7	533	16,007	4.0	635
OVER 650-----	78	77	1	878	13,688	3.7	511	16,205	4.1	664
TOTAL OR AVERAGE-----	10,095	5,043	5,052	190,354	11,535	3.8	436	11,377	3.8	437

TABLE 6.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF THE DAUGHTERS OF SIRES PROVED IN 1961, AND THE DAMS OF THESE DAUGHTERS, GROUPED ACCORDING TO MILK PRODUCTION RANGE OF THESE DAUGHTERS

MILK PRODUCTION RANGE OF DAUGHTERS POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAM-AND-DAUGHTER PAIRS NUMBER	AVERAGE PRODUCTION					
					DAMS			DAUGHTERS		
					MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS	MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS
UNDER 6500---	188	11	177	1,705	7,205	4.8	348	5,883	5.1	298
6500 - 7499---	467	109	358	5,251	7,714	4.8	369	7,049	4.9	345
7500 - 8499---	712	233	479	7,636	8,443	4.5	384	8,015	4.6	371
8500 - 9499---	784	277	507	8,888	9,646	4.1	394	9,002	4.2	376
9500 -10499---	1,076	317	759	13,722	10,725	3.8	408	10,044	3.9	393
10500-11499---	1,601	492	1,109	29,341	11,623	3.7	428	11,018	3.8	414
11500-12499---	1,889	789	1,100	52,451	12,230	3.6	444	12,001	3.7	445
12500-13499---	1,735	980	755	43,119	12,821	3.6	465	12,970	3.7	477
13500-14499---	942	673	269	20,160	13,318	3.6	484	13,937	3.7	514
14500-15499---	427	338	89	5,040	13,886	3.6	503	14,931	3.6	541
15500-16499---	178	161	17	2,146	14,394	3.6	519	15,920	3.6	580
OVER 16500---	96	92	4	895	14,418	3.6	520	18,049	3.8	678
TOTAL OR AVERAGE-----	10,095	4,472	5,623	190,354	11,535	3.8	436	11,377	3.8	437

PRODUCTION RECORDS REPORTED TO THE DAIRY CATTLE RESEARCH BRANCH BY STATE EXTENSION SERVICES, FOR THE PERMANENT FILES DURING 1960 and 1961

State	First 9 months of 1961									1960	
	Cows on test in all association herds on January 1	Production records reported 1/ 2/	Herd Test Records Reported by --				Total records reported		Records Returned 3/	Production records reported 2/	
			American Dairy Cattle Club	Brown Swiss Cattle Breeders' Association	American Guernsey Cattle Club	American Jersey Cattle Club					
	Number	Number	Number	Number	Number	Number	Number	Percent	Number	Number	Percent
Maine	22,060	13,650	-	-	62	66	13,778	62.5	273	14,611	69.6
N. H.	12,240	6,874	-	-	40	67	6,981	57.0	149	7,678	65.4
Vt.	47,792	16,949	-	20	51	545	17,565	36.8	325	23,576	51.9
Mass.	22,795	14,935	28	75	128	343	15,509	68.0	177	18,498	83.7
R. I.	2,709	1,498	-	-	66	194	1,758	64.9	13	1,530	55.4
Conn.	24,734	13,185	-	73	502	-	13,760	55.6	194	18,470	83.8
N. Y.	157,305	105,531	16	-	553	667	106,767	67.9	5,185	116,247	77.0
Pa.	156,187	86,161	-	25	771	180	87,137	55.8	5,581	124,242	89.0
N. J.	28,235	9,948	-	75	695	264	10,982	38.9	407	14,984	54.5
Md.	46,433	20,672	-	60	419	251	21,402	46.1	174	27,578	62.4
Del.	3,832	2,594	-	8	141	-	2,743	71.6	24	3,538	98.4
Va.	60,015	35,920	-	-	205	198	36,323	60.5	629	33,506	65.7
W. Va.	9,166	3,725	-	17	8	87	3,837	41.9	37	4,400	50.4
Ky.	17,331	3,721	-	13	107	468	4,309	24.9	111	7,011	40.4
N. C.	34,915	17,634	-	-	629	398	18,661	53.4	238	21,565	67.2
S. C.	13,850	7,172	-	39	379	-	7,590	54.8	83	6,973	66.1
Ga.	22,451	5,517	-	11	170	215	5,913	26.3	102	5,979	30.3
Fla.	21,413	3,252	-	5	285	124	3,666	17.1	58	7,150	33.1
Ala.	20,077	6,386	-	-	28	191	6,605	32.9	57	8,983	50.5
Miss.	8,679	1,513	-	10	201	262	1,986	22.9	32	2,750	35.8
Tenn.	19,384	2,904	-	-	466	732	4,102	21.2	50	1,812	11.1
La.	4,455	512	-	-	217	177	906	20.3	3	1,111	28.0
Ark.	2,845	1,197	-	8	78	170	1,453	51.1	30	1,234	64.3
Ohio	66,656	30,220	-	302	1,818	1,702	34,042	51.1	896	32,729	54.4
Ind.	39,237	14,330	27	65	623	535	15,580	39.7	127	20,610	57.6
Ill.	58,090	34,108	-	166	380	321	34,975	60.2	1,428	41,463	71.2
Mich.	66,425	37,910	-	128	259	559	38,856	58.5	1,903	64,997	106.8
Wis.	100,325	101,630	55	105	44	166	102,000	101.7	1,925	46,487	47.0
Minn.	114,094	43,052	-	6	149	153	43,360	38.0	1,049	54,364	50.7
Iowa	57,146	26,839	-	64	67	281	27,251	47.7	544	39,507	72.6
Mo.	25,965	7,300	-	19	219	169	7,707	29.7	145	8,989	41.4
N. Dak.	5,921	3,088	-	35	9	-	3,132	52.9	82	4,154	76.9
S. Dak.	6,495	1,479	-	39	16	-	1,534	23.6	21	1,748	29.7
Nebr.	12,010	4,103	-	9	313	45	4,470	37.2	228	2,139	16.2
Kans.	29,024	10,914	-	30	140	125	11,209	38.6	164	13,483	51.6
Okla.	7,930	782	-	17	285	303	1,387	17.5	41	3,386	46.1
Tex.	24,850	5,933	-	-	240	876	7,049	28.4	65	8,962	41.0
Mont.	5,697	1,539	-	3	69	17	1,628	28.6	15	1,178	21.2
Idaho	26,193	5,364	-	5	228	138	5,735	21.9	75	7,214	28.4
Wyo.	1,937	374	-	-	17	-	391	20.2	39	109	7.6
Nev.	3,477	93	-	-	-	171	264	7.6	4	154	5.0
Utah	17,456	10,902	-	-	29	11	10,942	62.7	309	2,352	14.5
Colo.	17,464	2,234	-	3	45	76	2,358	13.5	94	1,364	8.8
N. Mex.	4,992	619	-	-	127	117	863	17.3	43	579	14.3
Ariz.	21,002	3,087	-	-	30	30	3,147	15.0	114	782	3.0
Wash.	48,224	15,314	-	-	852	432	16,598	34.4	429	36,125	82.8
Oreg.	29,696	13,610	-	-	411	857	14,878	50.1	323	14,976	52.1
Calif.	313,615	4,119	-	37	958	497	5,611	1.8	26	4,714	1.6
P. R.	4,507	31	-	-	-	-	31	.7	-	251	5.7
Hawaii	138	59	-	-	-	-	59	42.8	-	253	124.6
Alaska	0	117	-	-	-	-	117	-	1	-	-
U. S.	1,867,469	760,600	126	1,472	13,529	13,180	788,907	42.2	24,022	886,495	50.8

1/ Includes cows enrolled since January 1, 1961.
2/ Production records reported on DHIA-718 and DHIA-1095.
3/ Records returned to States because of inconsistent or incomplete data.

Growth Through Agricultural Progress

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National Cooperative Dairy Herd Improvement Program

RECORD BOOK

A plan for every size herd

STANDARD DHIA OWNER SAMPLER WEIGH-A-DAY-A-MONTH

AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter

ARS-44-109
(Vol. 37, No. 10)

NOVEMBER 1961

DHIA COWS PASS THE 11,000 POUND LEVEL OF MILK PRODUCTION

1960 is another milestone in the history of dairy-herd-improvement in this country. During the year, DHIA cows established an all-time high average milk and butterfat production level, producing on the average 11,045 pounds of milk and 428 pounds of butterfat.

The table on the back of this page gives the average production of DHIA cows by State.

A summary of 18,644 yearly herd records that included data on value of product and feed cost revealed a familiar story to DHIA members -- good cows pay more.

The following table, based on the assumption that feed cost represents approximately one-half the total cost of producing milk, shows the relationship of high production and high returns.

Milk Production Level (pounds)	Value of Product (dollars)	Feed Cost (dollars)	Other Costs (dollars)	Net Profit (dollars)
4,000	238	115	115	8
6,000	323	147	147	29
8,000	419	178	178	63
10,000	469	196	196	77
11,045 (DHIA Av.)	500	205	205	90
12,000	537	213	213	111
14,000	625	238	238	149

GOOD COWS PAY MORE

Issued December 1961

1862 1962

Growth Through Agricultural Progress

SUMMARY OF THE 1960-61 DAIRY-HERD-IMPROVEMENT-ASSOCIATION RECORDS, BY STATES

State	Associations active 1-1-61	Cow-years	Average production			State	Associations active 1-1-61	Cow-years	Average production		
			Milk	Test	Fat				Milk	Test	Fat
	Number	Number	Pounds	Pct.	Pounds		Number	Number	Pounds	Pct.	Pounds
Ala	21	11,082	7,635	4.0	303	Nev	5	92	10,501	3.5	364
Alaska	0	---	---	---	---	N. H	10	7,731	10,352	4.1	423
Ariz	4	3,733	11,392	3.7	420	N. J	10	22,371	10,562	3.9	413
Ark	7	1,566	7,977	3.9	315	N. Mex	6	3,576	10,205	4.0	405
Calif	33	272,301	12,019	3.9	463	N. Y	49	148,986	11,254	3.7	422
Colo	20	12,403	10,551	3.8	403	N. C	46	30,476	9,299	3.9	360
Conn	8	17,160	11,060	4.0	438	N. Dak	14	2,871	10,402	3.7	387
Del	3	3,500	9,710	3.9	382	Ohio	80	28,599	10,418	3.8	399
Fla	10	5,042	7,702	4.2	324	Okla	20	2,237	9,025	3.9	354
Ga	25	8,703	8,413	4.0	335	Ore	23	14,145	9,481	4.3	412
Hawaii	4	---	---	---	---	Pa	59	133,686	10,585	3.9	417
Idaho	36	9,413	10,361	3.9	406	P. R	4	---	---	---	---
Ill	64	41,253	10,463	3.9	407	R. I	2	1,575	10,767	3.9	419
Ind	66	12,668	10,307	4.0	417	S. C	18	8,157	8,567	3.9	338
Iowa	71	48,864	10,527	3.8	400	S. Dak	15	2,819	10,958	3.6	397
Kans	47	21,016	10,050	3.9	389	Tenn	33	5,867	8,355	4.1	345
Ky	45	5,989	9,273	3.9	360	Tex	28	10,340	9,291	3.8	355
La	9	1,694	6,993	4.3	300	Utah	20	14,627	11,671	3.7	436
Me	16	11,035	10,396	4.1	423	Vt	16	27,667	9,589	4.1	396
Md	18	25,109	9,789	4.0	392	Va	62	47,770	10,112	3.9	397
Mass	12	18,106	10,690	4.0	429	Wash	24	37,462	11,042	4.1	449
Mich	78	55,670	11,103	3.8	422	W. Va	14	4,193	9,183	3.9	356
Minn	73	26,824	10,952	3.7	403	Wis	64	88,165	10,884	3.8	414
Miss	13	4,484	6,954	4.4	303	Wyo	5	907	11,028	3.6	401
Mo	50	10,352	9,531	4.0	383						
Mont	8	2,821	10,856	3.7	402	Total or Average	1,395	1,280,785	11,045	3.9	428
Nebr	27	5,682	9,693	3.9	376						

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA OWNER SAMPLER WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-111
Dairy-Herd-Improvement Letter (Vol. 37, No. 11)

December 1961

NEW DHIA PROVED SIRE LIST

DHIA Proved-Sire List, compiled in July and August when the 705-III ADP sire-proving procedures were operated, has been printed and is being distributed to those on the mailing list receiving the Dairy-Herd-Improvement Letter. The distribution will be completed in January.

The List includes summaries of 10,095 proved sires and 8,196 daughter-average records.

The DHIA Proved-Sire List is printed in two parts: PART I - Ayrshire, Guernsey, Jersey, Brown Swiss, Milking Shorthorn, and Red Dane sires -- 256 pages. PART 2 - Holstein sires -- 528 pages.

PROVED SIRES IN ARTIFICIAL-BREEDING SERVICE JANUARY 1, 1961

On January 1, 1961, there were 2,486 sires in artificial-breeding service in 45 AI studs operating in the United States. Of the 2,486 sires, 488, or 19.6 percent, were sires with sufficient number of AI progeny to warrant the compilation of AI proofs.

A summary of the 488 AI proved-sire records is given in tables on pages 2, 3, and 4.

1961 SUMMARY OF DHIA HERD DATA

A summary of 18,644 complete individual herd reports (780's, 205-9's and/or 1105's) included in the 1961 tabulations showed that on the average DHIA cows received, during the testing year, 7,800 pounds of succulent roughage, 3,900 pounds of dry roughage, 3,200 pounds of concentrates, and were on pasture 163 days.

On page 5 is a tabulation showing by State, the average herd production and the amount of feed received per cow, based on herd records included in the 1961 tabulation of DHIA herd records.

Issued January 1962

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TABLE 1.--SUMMARY OF PROVED-SIRE RECORDS OF SIRES IN ARTIFICAL-BREEDING SERVICE JANUARY 1, 1961, BY BREED

BREED	SIRES	DAMS			DAUGHTERS		
		MILK	BUTTERFAT		MILK	BUTTERFAT	
	NUMBER	POUNDS	%	POUNDS	POUNDS	%	POUNDS
AYRSHIRE------	19	9,519	4.1	389	9,402	4.2	392
GUERNSEY------	68	8,516	4.8	411	8,637	4.8	419
HOLSTEIN------	294	12,628	3.7	462	12,674	3.7	472
JERSEY--------	62	8,078	5.2	424	7,930	5.2	414
BROWN SWISS---	41	10,963	4.1	447	10,623	4.2	443
SHORTHORN-----	4	8,402	4.1	345	8,120	5.0	406
TOTAL OR AVERAGE-----	488	11,181	4.0	445	11,172	4.0	452

TABLE 2.--NUMBER OF PROVED SIRES IN ARTIFICAL-BREEDING SERVICE JANUARY 1, 1961, BY AGE AND BREED

AGE IN YEARS	AYRSHIRE	GUERNSEY	HOLSTEIN	JERSEY	BR.SWISS	SHORTHORN	RED DANE	OTHER	RED POLL	TOTAL
5-----										
6-----										
7-----		2	3	3						8
8-----	2	6	25	5						38
9-----		4	23	7	5					39
10-----	2	7	36	4	4	2				55
11-----	1	6	29	5	8					49
12-----	2	8	38	10	7					65
13-----	3	5	25	6	5					44
14-----	2	4	23	3	1					33
15-----		3	12	2	1	1				19
16-----	1		5							6
17-----	1		4							5
NO REPORT	5	23	71	17	10	1				127
TOTAL-----	19	68	294	62	41	4				488

TABLE 3.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF THE DAUGHTERS OF SIRES IN ARTIFICAL-BREEDING SERVICE JANUARY 1, 1961, AND THE DAMS OF THESE DAUGHTERS, GROUPED ACCORDING TO BUTTERFAT PRODUCTION RANGE OF THE DAMS TO WHICH THEY WERE MATED

BUTTERFAT PRODUCTION RANGE OF DAMS POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAM-AND-DAUGHTER PAIRS NUMBER	AVERAGE PRODUCTION					
					DAMS			DAUGHTERS		
					MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS	MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS
UNDER 275-----	1	1		4	6,551	4.2	272	8,333	3.7	312
300 - 324-----	1	1		4	7,883	3.9	304	10,480	3.8	401
325 - 349-----	4	4		55	7,968	4.2	336	9,859	4.1	403
350 - 374-----	14	7	7	220	8,256	4.4	364	8,150	4.5	365
375 - 399-----	47	32	15	1,876	8,509	4.6	388	8,657	4.8	416
400 - 424-----	73	44	29	4,202	9,519	4.3	414	9,704	4.4	427
425 - 449-----	121	75	46	15,056	11,234	3.9	439	11,227	4.0	447
450 - 474-----	145	90	55	21,095	12,081	3.8	461	12,068	3.9	468
475 - 499-----	51	27	24	4,169	12,815	3.8	484	12,741	3.8	486
500 - 524-----	15	8	7	623	13,453	3.8	513	12,977	3.8	492
525 - 549-----	8	2	6	252	13,849	3.9	536	13,284	3.9	519
550 - 574-----	1		1	1	17,754	3.2	562	14,120	3.4	487
575 - 599-----	5	1	4	18	14,467	4.0	581	12,837	4.2	533
OVER 650-----	2		2	2	16,252	4.3	694	13,370	4.0	539
TOTAL OR AVERAGE-----	488	292	196	47,577	11,181	4.0	445	11,172	4.0	452

TABLE 4.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF THE DAUGHTERS OF SIRES IN ARTIFICAL-BREEDING SERVICE JANUARY 1, 1961, AND THE DAMS OF THESE DAUGHTERS, GROUPED ACCORDING TO MILK PRODUCTION RANGE OF THE DAMS TO WHICH THEY WERE MATED

MILK PRODUCTION RANGE OF DAMS POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAM-AND-DAUGHTER PAIRS NUMBER	AVERAGE PRODUCTION					
					DAMS			DAUGHTERS		
					MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS	MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS
6500 - 7499---	14	11	3	257	7,142	5.1	361	7,692	5.0	382
7500 - 8499---	72	39	33	2,983	8,067	5.0	405	8,156	5.0	408
8500 - 9499---	55	24	31	1,718	8,954	4.8	431	8,783	4.9	427
9500 -10499---	25	13	12	982	9,962	4.0	401	10,150	4.4	448
10500-11499---	32	17	15	1,490	11,070	4.0	438	10,847	4.0	439
11500-12499---	130	76	54	22,898	12,115	3.7	445	12,261	3.7	460
12500-13499---	130	66	64	16,330	12,856	3.7	470	12,849	3.7	478
13500-14499---	24	12	12	901	13,984	3.7	515	13,518	3.8	509
15500-16499---	4		4	15	15,950	4.0	639	14,179	3.9	559
OVER 16500---	2		2	3	17,135	3.3	570	13,718	3.6	500
TOTAL OR AVERAGE-----	488	258	230	47,577	11,181	4.0	445	11,172	4.0	452

TABLE 5.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF SIRES IN ARTIFICAL-BREEDING SERVICE JANUARY 1, 1961, GROUPED ACCORDING TO THE BUTTERFAT PRODUCTION RANGE OF THESE DAUGHTERS

BUTTERFAT PRODUCTION RANGE OF DAUGHTERS POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAM-AND-DAUGHTER PAIRS NUMBER	AVERAGE PRODUCTION					
					DAMS			DAUGHTERS		
					MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS	MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS
UNDER 275-----	3		3	9	12,501	3.6	455	5,659	3.8	217
275 - 299-----	1		1	2	9,528	4.4	419	7,375	3.9	291
300 - 324-----	3	1	2	12	8,324	4.1	340	7,585	4.2	316
325 - 349-----	8	1	7	153	8,266	4.5	375	7,419	4.5	334
350 - 374-----	14	4	10	256	8,056	4.9	393	7,701	4.7	365
375 - 399-----	37	11	26	1,281	9,005	4.5	404	8,553	4.5	388
400 - 424-----	74	26	48	3,400	9,708	4.4	423	9,362	4.4	413
425 - 449-----	87	37	50	9,575	11,085	4.0	440	10,888	4.0	438
450 - 474-----	106	76	30	15,674	11,735	3.9	453	11,755	3.9	462
475 - 499-----	78	68	10	10,589	12,179	3.8	462	12,558	3.9	485
500 - 524-----	46	41	5	5,208	12,757	3.7	470	13,488	3.8	509
525 - 549-----	16	13	3	921	13,005	3.8	491	13,689	3.9	533
550 - 574-----	7	7		447	13,625	3.7	508	14,306	3.9	558
575 - 599-----	2	2		13	12,624	3.9	488	14,860	3.9	581
600 - 624-----	4	3	1	20	14,652	4.0	585	15,156	4.1	616
OVER 650-----	2	2		17	10,798	3.7	404	12,747	5.2	663
TOTAL OR AVERAGE-----	488	292	196	47,577	11,181	4.0	445	11,172	4.0	452

TABLE 6.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF THE DAUGHTERS OF SIRES IN ARTIFICAL-BREEDING SERVICE JANUARY 1, 1961, GROUPED ACCORDING TO THE MILK PRODUCTION RANGE OF THESE DAUGHTERS

MILK PRODUCTION RANGE OF DAUGHTERS POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAM-AND-DAUGHTER PAIRS NUMBER	AVERAGE PRODUCTION					
					DAMS			DAUGHTERS		
					MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS	MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS
UNDER 6500---	6		6	31	9,710	4.3	417	5,806	7.2	419
6500 - 7499---	19	1	18	358	8,265	5.1	423	7,096	5.3	373
7500 - 8499---	64	26	38	2,525	8,178	4.9	400	8,086	4.9	397
8500 - 9499---	57	40	17	2,114	8,785	4.8	423	9,001	4.8	434
9500 -10499---	27	8	19	1,020	10,533	4.1	428	10,022	4.2	423
10500-11499---	51	16	35	4,049	11,529	3.8	442	11,083	4.0	438
11500-12499---	99	37	62	18,069	12,325	3.7	455	12,090	3.8	456
12500-13499---	105	76	29	14,583	12,654	3.6	462	12,959	3.7	482
13500-14499---	45	41	4	4,601	13,214	3.7	482	13,942	3.7	512
14500-15499---	11	10	1	179	13,389	3.7	502	14,934	3.7	559
15500-16499---	3	2	1	35	13,975	3.7	515	15,720	3.6	559
OVER 16500---	1	1		13	11,949	3.5	421	19,203	3.5	663
TOTAL OR AVERAGE-----	488	258	230	47,577	11,181	4.0	445	11,172	4.0	452

SUMMARY OF THE 1960-61 DAIRY-HERD-IMPROVEMENT ASSOCIATION RECORDS, BY STATES [1]

State		Herds on test 1-1-61	Herd Records used	Average production			Average feed consumed			Concentrates fed per 100 lb. of milk produced	Average days on pasture
							Roughage				
Code	Name			Milk	Test	Fat	Succulent	Dry	Concentrates		
		Number	Number	Pounds	%	Pounds	100 Pounds	100 Pounds	100 Pounds	Pounds	Number
11	Maine	644	317	10,417	4.1	424	58	49	36	35	146
12	New Hampshire	325	179	10,320	4.1	424	75	45	32	31	146
13	Vermont	1,125	660	9,571	4.1	396	63	42	30	31	151
14	Massachusetts	546	387	10,497	4.0	424	95	43	39	37	131
15	Rhode Island	57	27	10,878	3.8	418	120	38	42	39	124
16	Connecticut	534	334	10,991	4.0	437	116	32	41	37	140
21	New York	3,912	2,934	11,354	3.7	425	98	46	35	31	147
22	New Jersey	575	310	10,680	3.8	411	111	36	32	30	168
23	Pennsylvania	4,854	3,720	10,503	3.9	413	84	43	35	33	169
31	Ohio	2,510	337	10,434	3.8	399	78	45	34	33	156
32	Indiana	1,212	401	10,299	4.0	411	63	35	28	27	167
33	Illinois	1,725	1,158	10,534	3.9	410	59	45	32	30	162
34	Michigan	1,994	1,615	11,120	3.8	423	69	49	32	29	144
35	Wisconsin [2]	2,705	-	-	-	-	-	-	-	-	-
41	Minnesota	3,867	920	11,018	3.7	406	72	46	34	31	127
42	Iowa	1,899	1,117	10,704	3.8	402	66	45	35	33	150
43	Missouri	694	256	9,612	4.0	385	64	33	31	32	176
45	North Dakota	190	57	10,684	3.7	393	75	55	30	28	121
46	South Dakota	204	61	11,137	3.5	395	93	53	31	28	114
47	Nebraska	323	74	9,537	3.9	370	62	54	30	31	135
48	Kansas	813	535	10,045	3.9	390	80	38	35	35	183
50	Delaware	122	86	9,662	3.9	381	82	28	31	32	206
51	Maryland	977	435	10,028	4.0	398	93	34	33	33	184
52	Virginia	1,167	857	10,148	3.9	398	85	32	33	33	198
54	West Virginia	252	110	9,215	3.9	355	78	36	28	30	173
55	North Carolina	729	594	9,281	3.9	358	112	25	32	34	204
56	South Carolina	208	100	8,593	3.9	337	96	17	32	37	289
57	Georgia	355	113	8,397	4.0	335	52	18	32	38	324
58	Florida	124	20	7,725	4.3	333	22	12	48	62	316
61	Kentucky	523	142	9,037	4.0	357	51	31	28	31	205
63	Tennessee	506	124	8,354	4.2	347	57	27	28	34	222
64	Alabama	262	123	7,578	4.1	308	40	17	32	42	309
65	Mississippi	140	65	6,928	4.4	302	41	16	27	39	294
71	Arkansas	65	28	8,030	3.8	309	43	35	31	39	209
72	Louisiana	70	16	6,924	4.2	294	13	3	24	35	365
73	Oklahoma	170	39	9,060	3.9	355	52	32	31	34	236
74	Texas	375	114	9,256	3.8	356	52	33	37	40	259
81	Montana	126	33	11,105	3.6	398	19	96	27	24	101
82	Idaho	824	203	10,053	4.0	405	42	70	23	23	137
83	Wyoming [2]	56	-	-	-	-	-	-	-	-	-
84	Colorado	340	27	10,149	3.7	378	60	80	29	29	125
85	New Mexico	58	4	10,003	3.6	365	16	11	28	28	136
86	Arizona [2]	174	-	-	-	-	-	-	-	-	-
87	Utah [2]	478	-	-	-	-	-	-	-	-	-
88	Nevada [2]	47	-	-	-	-	-	-	-	-	-
91	Washington [2]	974	-	-	-	-	-	-	-	-	-
92	Oregon	563	12	9,325	4.1	385	55	36	27	29	215
93	California [2]	2,130	-	-	-	-	-	-	-	-	-
Total or average		42,523	18,644	10,048	3.9	390	78	39	32	32	163

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[1] Based on complete individual herd records, as reported by association supervisors.

[2] Complete feed data not reported.

UNITED STATES DEPARTMENT OF AGRICULTURE
1862 1962

Growth Through Agricultural Progress

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA OWNER SAMPLER WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

MAR 1 1962

ARS-44-112
Dairy-Herd-Improvement Letter (Vol. 38, No. 1)

January 1962

ALL-TIME PEAK NUMBER OF LACTATION RECORDS REPORTED DURING 1961

During 1961, 1,084,799 lactation records were reported to the Dairy Cattle Research Branch, Animal Husbandry Research Division for use in compiling DHIA sire records. This is an all-time peak number of lactation records reported in a single year.

The number of lactation records reported each year, since 1946 is shown below:

Year	Lactation records reported (Number)	Year	Lactation records reported (Number)
1946	183,884	1954	667,074
1947	250,811	1955	636,293
1948	285,083	1956	658,086
1949	391,067	1957	565,360
1950	471,721	1958	786,496
1951	540,953	1959	927,998
1952	485,949	1960	886,495
1953	501,582	1961	1,084,799

The 1,084,799 records reported during 1961 represents approximately 58 percent of the 1,867,469 cows on Standard DHIA test at the beginning of the year.

On the following page is a table showing the number of records reported by States.

Growth Through Agricultural Progress

Issued February 1962

PRODUCTION RECORDS REPORTED TO THE DAIRY CATTLE RESEARCH BRANCH BY STATE EXTENSION SERVICES, FOR THE PERMANENT FILES DURING 1960 and 1961

State	1961									1960	
	Cows on test in all association herds on January 1	Production records reported 1/ 2/	Herd Test Records Reported by -- American Dairy Cattle Club	Brown Swiss Cattle Breeders' Association	American Guernsey Cattle Club	American Jersey Cattle Club	Total records reported		Records Returned 3/	Production records reported 2/	
	Number	Number	Number	Number	Number	Number	Number	Percent	Number	Number	Percent
Maine-----	22,060	19,030	-	-	64	84	19,178	86.9	274	14,611	69.6
N. H------	12,240	9,855	-	-	51	100	10,006	81.7	204	7,678	65.4
Vt--------	47,792	24,632	-	20	53	726	25,431	53.2	380	23,576	51.9
Mass------	22,795	19,381	28	75	157	415	20,056	88.0	177	18,498	83.7
R. I------	2,709	1,986	-	-	90	220	2,296	84.8	13	1,530	55.4
Conn------	24,734	16,368	-	73	628	-	17,069	69.0	207	18,470	83.8
N. Y------	157,305	141,718	16	-	682	846	143,262	91.1	5,185	116,247	77.0
Pa--------	156,187	133,965	-	25	1,049	207	135,246	86.6	5,581	124,242	89.0
N. J------	28,235	13,920	-	75	980	328	15,303	54.2	453	14,984	54.5
Md--------	46,433	27,600	-	60	461	303	28,424	61.2	192	27,578	62.4
Del-------	3,832	3,661	-	8	150	-	3,819	99.7	24	3,538	98.4
Va--------	60,015	47,869	-	-	298	238	48,405	80.7	734	33,506	65.7
W. Va-----	9,166	5,902	-	17	19	94	6,032	65.8	46	4,400	50.4
Ky--------	17,331	5,393	-	13	112	543	6,061	35.0	111	7,011	40.4
N. C------	34,915	25,096	-	-	775	477	26,348	75.5	249	21,565	67.2
S. C------	13,850	10,398	-	39	505	-	10,942	79.0	83	6,973	66.1
Ga--------	22,451	8,467	-	11	207	294	8,979	40.0	150	5,979	30.3
Fla-------	21,413	4,273	-	5	408	124	4,810	22.5	58	7,150	33.1
Ala-------	20,077	11,466	-	-	29	212	11,707	58.3	62	8,983	50.5
Miss------	8,679	2,669	-	10	268	306	3,253	37.5	39	2,750	35.8
Tenn------	19,384	4,139	-	-	600	819	5,558	28.7	50	1,812	11.1
La--------	4,455	680	-	-	263	234	1,177	26.4	11	1,111	28.0
Ark-------	2,845	1,717	-	8	116	200	2,041	71.7	30	1,234	64.3
Ohio------	66,656	40,291	-	302	2,502	2,165	45,260	67.9	1,036	32,729	54.5
Ind-------	39,237	20,862	27	65	689	642	22,285	56.8	136	20,610	57.6
Ill-------	58,090	49,771	-	166	499	372	50,808	87.5	1,454	41,463	71.2
Mich------	66,425	59,590	-	128	379	704	60,801	91.5	1,903	64,997	106.8
Wis-------	100,325	121,343	55	105	75	187	121,765	121.4	1,925	46,487	47.0
Minn------	114,094	66,740	-	6	208	193	67,147	58.9	1,407	54,364	50.7
Iowa------	57,146	33,431	-	64	67	342	33,904	59.3	573	39,507	72.6
Mo--------	25,965	9,135	-	19	283	215	9,652	37.2	225	8,989	41.4
N. Dak----	5,921	3,912	-	35	27	-	3,974	67.1	105	4,154	76.9
S. Dak----	6,495	1,850	-	39	16	-	1,905	29.3	25	1,748	29.7
Nebr------	12,010	4,631	-	9	376	56	5,072	42.2	248	2,139	16.2
Kans------	29,024	14,311	-	30	176	138	14,655	50.5	229	13,483	51.6
Okla------	7,930	1,568	-	17	299	344	2,228	28.1	41	3,386	46.1
Tex-------	24,850	10,555	-	-	308	1,063	11,926	48.0	85	8,962	41.0
Mont------	5,697	1,679	-	3	77	17	1,776	31.2	19	1,178	21.2
Idaho-----	26,193	7,726	-	5	281	191	8,203	31.3	142	7,214	28.4
Wyo-------	1,937	376	-	-	21	-	397	20.5	39	109	7.6
Nev-------	3,477	93	-	-	-	198	291	8.4	4	154	5.0
Utah------	17,456	10,902	-	-	29	11	10,942	62.7	309	2,352	14.5
Colo------	17,464	2,259	-	3	51	100	2,413	13.8	99	1,364	8.8
N. Mex----	4,992	619	-	-	160	153	932	18.7	43	579	14.3
Ariz------	21,002	3,141	-	-	39	33	3,213	15.3	115	782	3.0
Wash------	48,224	21,672	-	-	1,102	523	23,297	48.3	435	36,125	82.8
Oreg------	29,696	17,894	-	-	534	1,042	19,470	65.6	339	14,976	52.1
Calif-----	313,615	4,997	-	37	1,236	568	6,838	2.2	29	4,714	1.6
P. R------	4,507	38	-	-	-	-	38	.8	-	251	5.7
Hawaii----	138	80	-	-	-	-	80	58.0	-	253	124.6
Alaska----	0	124	-	-	-	-	124	-	1	-	-
U. S------	1,867,469	1,049,775	126	1,472	17,399	16,027	1,084,799	58.1	25,279	886,495	50.8

1/ Includes cows enrolled since January 1, 1961.
2/ Production records reported on DHIA-718 and DHIA-1095.
3/ Records returned to States because of inconsistent or incomplete data.

NEW TYPE DHIA SIRE RECORD ADOPTED

The dam-and-daughter DHIA Proved-Sire Record is being replaced with a daughter-herd-mate sire summary record.

Research has shown that daughter-herd-mate comparisons usually indicate the breeding value of a sire more reliably than daughter-dam comparisons.

The new sire record will be designed as --

USDA-DHIA Sire Summary Record

In the new Sire Summary Record herd-mate averages of daughters of all sires will be adjusted for numbers of herd mates. The herd-mate evaluation of AI sires will also be adjusted for numbers of daughters and for levels of herd mates relative to the breed average.

When the Branch's ADP 705-III procedures are again operated in June and July, the first of the new "USDA-DHIA Sire Summary Records" will be compiled.

ERRATA:

November 1961 Letter. Machine errors resulted in incorrect US-DHIA averages. The averages reported were 11,045 pounds of milk and 428 pounds of butterfat. The correct averages are 10,796 pounds of milk and 418 pounds of butterfat for the testing year 1960-61.

December 1961 Letter. The number of AI studs operating in the United States January 1, 1961, was given as 45. The number was 56.

MAY 1, 1962

DEADLINE FOR REPORTING LACTATION RECORDS

DHIA-718 - DHIA-1095

The automated ADP 705-III procedures will be operated beginning next June. When the procedures are operated all sire record summaries will be brought up-to-date, using all lactation records received in the Branch to May 1, 1962.

Therefore, all available lactation records should be reported in time to be received in the Branch by May 1, for inclusion in the new sire record summaries.

Supervisors should report manually calculated lactation records on form DHIA-718 as they are completed. Computing centers should report all available lactation records on form DHIA-1095 or on magnetic tape. Three centers plan to use magnetic tapes for reporting lactation records.

DEADLINE FOR REPORTING LACTATION RECORDS

MAY 1, 1962

JUNE 1, 1962

DEADLINE FOR REPORTING DHIA YEARLY HERD RECORDS

DHIA-780 - DHIA-205-9 - DHIA-1105

DHIA Herd and Association Summary and State and national DHIA tabulations of DHIA yearly herd records will be issued next July using ADP 705-III automated procedures. Only yearly herd records with testing years ending between May 1, 1961, and April 30, 1962, will be included in the summaries and tabulations.

Supervisors should report manually calculated yearly herd records on form DHIA-780. Computing centers should report yearly herd records on form DHIA-205-9 or DHIA-1105.

DEADLINE FOR REPORTING DHIA YEARLY HERD RECORDS

JUNE 1, 1962

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National Cooperative Dairy Herd Improvement Program

RECORD BOOK

A plan for every size herd

STANDARD DHIA OWNER SAMPLER WEIGH-A-DAY-A-MONTH

AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter

ARS-44-114
(Vol. 38, No. 2)

February 1962

ANOTHER ALL-TIME PEAK IN DAIRY RECORDKEEPING

On January 1, 1962, more cows than ever before were included in the three recordkeeping plans, DHIA, OS, and WADAM, which collectively make up the National Cooperative Dairy Herd Improvement Program. On January 1, 1962, the Program included 2, 727, 274 cows. This number of cows represents 15. 7 percent of the milk cows of the nation.

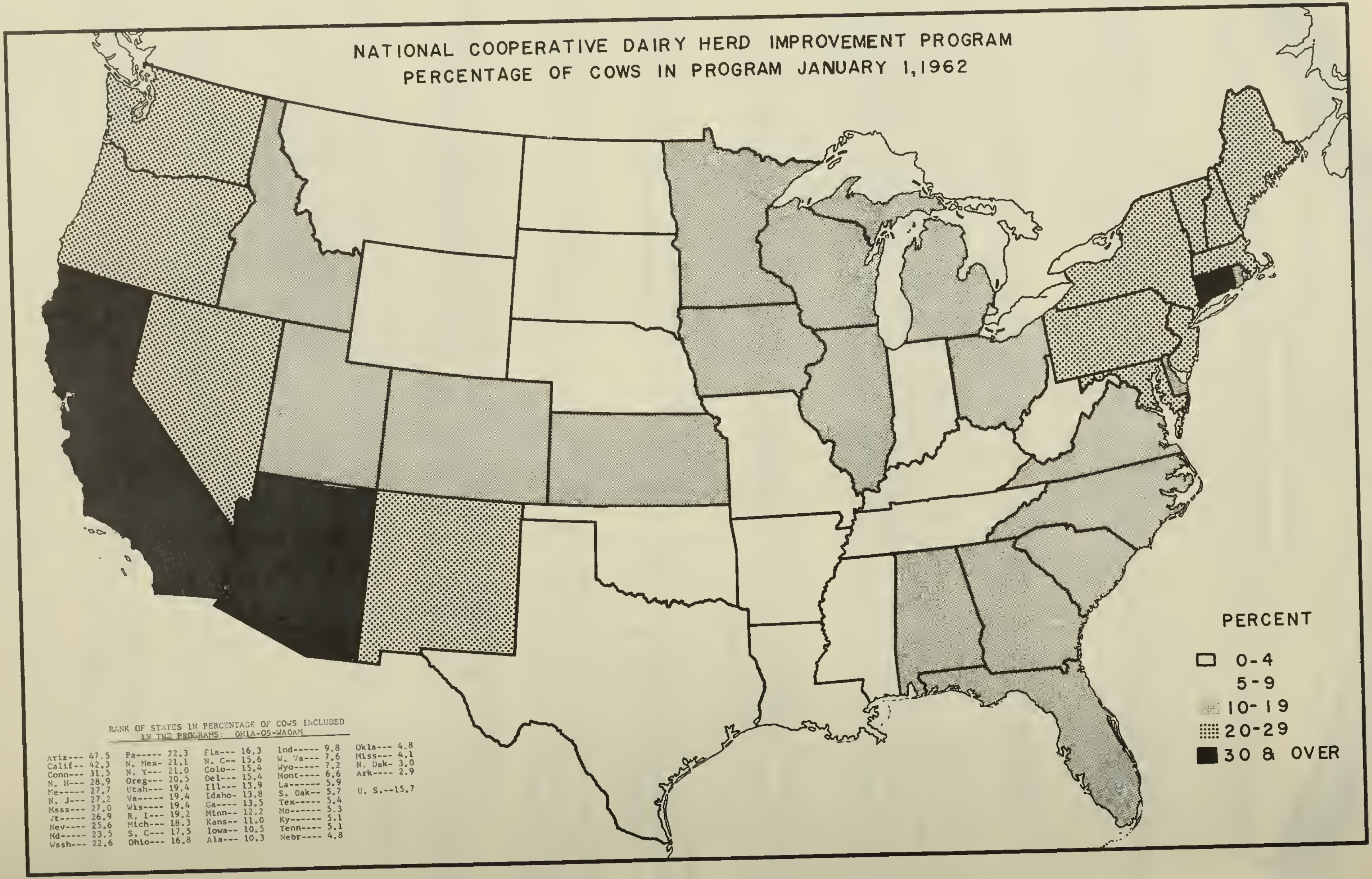
STANDARD DHIA - 1, 958, 355 cows are included in the Standard Recordkeeping Plan. This is 90, 886, or 4. 9 percent more cows than were in this plan January 1, 1961.

OWNER-SAMPLER - 698, 302 cows are included in the Owner-Sampler Recordkeeping Plan. This is 42, 417, or 6. 5 percent more than were in the plan January 1, 1961.

WEIGH-A-DAY-A-MONTH - 70, 617 cows are included in the WADAM Recordkeeping Plan. This is 230, or . 3 percent less than were in the plan January 1, 1961.

Complete data on the status of the National Cooperative Dairy Herd Improvement Program by State, as reported by State Extension Dairymen, are given on the following pages.

Issued March 1962



NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM
PERCENTAGE OF COWS IN PROGRAM JANUARY 1,1962

RANK OF STATES IN PERCENTAGE OF COWS INCLUDED IN THE PROGRAMS: OHIA-OS-WAOAM

Ariz---	47.5
Calif--	42.3
Conn---	31.5
N. H---	28.9
Me-----	27.7
N. J---	27.2
Mass---	27.0
Vt-----	26.9
Nev----	25.6
Md-----	23.5
Wash---	22.6
Pa-----	22.3
N. Mex-	21.1
N. Y---	21.0
Oreg---	20.5
Utah---	19.4
Va-----	19.4
Wis----	19.4
R. I---	19.2
Mich---	18.3
S. C---	17.5
Ohio---	16.8
Fla---	16.3
N. C--	15.6
Colo--	15.4
Del---	15.4
Ill---	13.9
Idaho-	13.8
Ga----	13.5
Minn--	12.2
Kans--	11.0
Iowa--	10.5
Ala---	10.3
Ind-----	9.8
W. Va---	7.6
Wyo-----	7.2
Mont----	6.6
La------	5.9
S. Dak--	5.7
Tex-----	5.4
Mo------	5.3
Ky------	5.1
Tenn----	5.1
Nebr----	4.8
Okla---	4.8
Miss---	4.1
N. Dak-	3.0
Ark----	2.9

U. S.--15.7

DAIRY HERD IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES
(Active January 1, 1962)

State	Associations	Supervisors	Herds	Cows	Average cows per herd	Average per supervisor		Milk cows in United States 1/	
						Herds	Cows	Total	in DHIA's
	Number	Number	Number	Number	Number	Number	Number	Thousands	Percent
Me----------	15	35	611	22,266	36.4	17.5	636	94	23.7
N. H--------	9	23	323	13,078	40.5	14.0	569	51	25.6
Vt----------	38	72	1,110	48,743	43.9	15.4	677	262	18.6
Mass--------	12	26	533	22,504	42.2	20.5	866	94	23.9
R. I--------	2	2	51	2,585	50.7	25.5	1,293	14	18.5
Conn--------	8	26	505	24,702	48.9	19.4	950	88	28.1
N. Y--------	49	194	3,856	163,749	42.5	19.9	844	1,253	13.1
Pa----------	59	197	4,764	163,530	34.3	24.2	830	882	18.5
N. J--------	9	26	562	30,280	53.9	21.6	1,165	128	23.7
Md----------	17	47	919	46,985	51.1	19.6	1,000	218	21.6
Del---------	3	5	87	3,477	40.0	17.4	695	25	13.9
Va----------	65	63	1,140	61,194	53.7	18.1	971	334	18.3
W. Va-------	14	20	157	6,542	41.7	7.9	327	125	5.2
Ky----------	48	46	522	21,187	40.6	11.3	461	500	4.2
N. C--------	47	49	777	37,652	48.5	15.9	768	272	13.8
S. C--------	15	21	227	16,606	73.2	10.8	791	106	15.7
Ga----------	27	28	368	25,942	70.5	13.1	927	209	12.4
Fla---------	10	15	126	21,252	168.7	8.4	1,417	192	11.1
Ala---------	22	20	280	21,088	75.3	14.0	1,054	239	8.8
Miss--------	13	17	169	9,917	58.7	9.9	583	351	2.8
Tenn--------	37	35	472	22,874	48.5	13.5	654	489	4.7
La----------	8	10	69	4,455	64.6	6.9	446	231	1.9
Ark---------	10	12	81	3,713	45.8	6.8	309	216	1.7
Ohio--------	83	142	2,294	75,826	33.1	16.2	534	673	11.3
Ind---------	57	83	1,118	36,301	32.5	13.5	437	421	8.6
Ill---------	63	92	1,689	60,486	35.8	18.4	657	564	10.7
Mich--------	95	130	2,024	73,118	36.1	15.6	562	642	11.4
Wis---------	60	154	2,875	109,286	38.0	18.7	710	2,140	5.1
Minn--------	89	208	4,097	124,831	30.5	19.7	600	1,278	9.8
Iowa--------	75	111	1,859	57,755	31.1	16.7	520	854	6.8
Mo----------	46	43	695	26,938	38.8	16.2	626	657	4.1
N. Dak------	13	13	174	5,899	33.9	13.4	454	274	2.2
S. Dak------	15	15	216	7,238	33.5	14.4	483	244	3.0
Nebr--------	29	32	327	12,700	38.8	10.2	397	318	4.0
Kans--------	55	56	792	31,759	40.1	14.1	567	328	9.7
Okla--------	19	19	173	8,777	50.7	9.1	462	248	3.5
Tex---------	30	34	436	28,513	65.4	12.8	839	553	5.2
Mont--------	8	9	87	4,093	47.0	9.7	455	76	5.4
Idaho-------	19	38	793	27,100	34.2	20.9	713	200	13.6
Wyo---------	5	5	43	1,342	31.2	8.6	268	29	4.6
Nev---------	5	5	55	3,812	69.3	11.0	762	15	25.4
Utah--------	19	21	444	17,739	40.0	21.1	845	94	18.9
Colo--------	25	25	306	16,938	55.4	12.2	678	119	14.2
N. Mex------	6	8	50	4,848	97.0	6.3	606	41	11.3
Ariz--------	4	14	175	21,210	121.2	12.5	1,515	50	42.4
Wash--------	24	50	882	45,113	51.1	17.6	902	237	19.0
Oreg--------	18	29	517	27,500	53.2	17.8	948	157	17.5
Calif-------	34	137	2,152	329,517	153.1	15.7	2,405	813	40.5
Hawaii------	1	3	3	85	28.3	1.0	28	(2)	.7
Alaska------	1	1	12	340	28.3	12.0	340	-	-
P. R--------	1	6	37	4,970	134.3	6.2	828	-	-
Total or average---	1,436	2,472	42,034	1,958,355	46.6	17.0	792	17,398	11.3

1/ Estimated by the Statistical Reporting Service; number of milk cows on farms during year excluding heifers not yet fresh.

2/ 12,940; estimated by the University of Hawaii.

GROWTH OF DAIRY-HERD-IMPROVEMENT ASSOCIATION WORK IN THE UNITED STATES
(1906-1962, inclusive)

Year	Associations	Supervisors	Herds on test	Cows on test	Average cows per herd	Average production of cows on test		
						Milk	Test	Butterfat
	Number	Number	Number	Number	Number	Pounds	Percent	Pounds
1906---	1	----	31	239	7.7	5,300	4.1	215
1907---	4	----	----	1,606	---	5,366	4.1	220
1908---	6	----	----	3,921	---	-----	---	---
1909---	25	----	----	11,921	---	-----	---	---
1910---	40	----	----	1/ 25,000	---	1/ 5,730	4.0	1/ 227
1911---	64	----	----	1/ 40,000	---	-----	---	---
1912---	82	----	----	1/ 43,000	---	-----	---	---
1913---	100	----	----	47,150	---	-----	---	---
1914---	163	----	----	73,280	---	-----	---	---
1915---	211	----	----	105,526	---	-----	---	---
1916---	346	----	----	150,677	---	-----	---	---
1917---	459	----	11,720	216,831	18.5	-----	---	---
1918---	353	----	9,778	172,518	17.6	-----	---	---
1919---	385	----	10,000	167,313	16.7	-----	---	---
1920---	468	----	11,948	203,472	17.0	6,175	4.0	247
1921---	452	----	11,209	193,928	17.3	-----	---	---
1922---	513	----	12,508	215,321	17.2	-----	---	---
1923---	627	----	16,357	277,010	16.9	-----	---	---
1924 2/	---	----	----	-----	---	-----	---	---
1925---	732	----	18,677	307,073	16.4	7,189	4.0	284
1926---	777	----	19,540	327,653	16.8	7,331	4.0	290
1927---	837	----	21,128	362,014	17.1	7,411	4.0	293
1928---	947	----	23,327	414,891	17.8	7,476	4.0	296
1929---	1,090	----	26,182	465,804	17.8	7,498	4.0	298
1930---	1,143	----	27,888	507,549	18.2	7,642	4.0	303
1931---	1,112	----	26,308	510,714	19.4	7,812	3.9	306
1932---	1,005	----	20,351	427,044	21.0	7,858	3.9	310
1933---	881	----	15,447	358,501	23.2	7,849	4.0	313
1934---	793	----	13,694	325,837	23.8	8,015	4.0	322
1935---	809	----	15,573	364,218	23.4	7,977	4.0	322
1936---	876	----	17,344	404,412	23.3	7,912	4.0	319
1937---	992	----	20,772	496,562	23.9	7,923	4.0	320
1938---	1,106	----	23,701	558,993	23.6	7,831	4.0	317
1939---	1,228	----	25,949	625,284	24.1	7,977	4.1	323
1940---	1,300	----	27,948	676,141	24.2	8,133	4.1	331
1941---	1,383	----	31,381	763,502	24.3	8,225	4.1	335
1942---	1,421	----	32,957	816,117	24.8	8,323	4.1	339
1943---	1,057	----	24,155	616,972	25.5	8,325	4.1	338
1944---	954	----	20,825	561,587	27.0	8,296	4.1	336
1945---	949	----	21,254	577,200	27.2	8,592	4.0	346
1946---	1,124	----	23,331	627,878	27.0	8,635	4.0	349
1947---	1,426	----	28,812	775,546	26.9	8,638	4.0	348
1948---	1,668	----	33,274	886,129	26.6	8,675	4.0	350
1949---	1,787	----	35,851	943,939	26.3	8,907	4.0	359
1950---	1,973	----	40,100	1,088,872	27.2	9,172	4.0	370
1951---	2,143	----	42,949	1,186,615	27.6	9,195	4.0	370
1952---	2,109	----	40,105	1,166,297	29.1	9,192	4.0	366
1953---	2,151	----	40,983	1,226,588	29.9	9,253	4.0	368
1954---	2,175	----	41,254	1,311,698	31.8	9,363	4.0	372
1955---	2,288	----	41,240	1,333,866	32.3	9,502	3.9	375
1956---	2,266	----	40,984	1,406,306	34.4	9,713	3.9	383
1957 3/	1,700	2,310	41,638	1,479,799	35.5	9,894	3.9	389
1958---	1,544	2,293	39,985	1,548,884	38.7	10,068	3.9	394
1959---	1,500	2,337	40,284	1,607,538	39.9	10,327	3.9	401
1960---	1,509	2,397	41,293	1,746,752	42.3	------	---	---
1961---	1,395	2,448	42,558	1,867,469	43.9	10,796	3.9	4/ 418
1962---	1,436	2,472	42,034	1,958,355	46.6	------	---	---

1/ Estimated.
2/ Date for collecting data changed in 1924 from July 1 to January 1.
3/ Prior to 1957 associations were counted on the basis of supervisor circuits.
4/ Date for summarizing data changed in 1961 from January 1 to May 1.

OWNER-SAMPLER DAIRY RECORDKEEPING IN THE UNITED STATES
(January 1, 1962)

State	Counties	Herds	Cows	Milk cows in United States 1/ Total	Milk cows in United States 1/ in O-S
	Number	Number	Number	Thousands	Percent
Me	12	141	3,652	94	3.9
N. H	4	62	1,675	51	3.3
Vt	13	650	21,721	262	8.3
Mass	10	117	2,810	94	3.0
R. I	2	3	101	14	.7
Conn	8	88	3,006	88	3.4
N. Y	49	3,258	99,942	1,253	8.0
Pa	59	1,270	33,586	882	3.8
N. J	8	132	4,353	128	3.4
Md	13	120	4,250	218	1.9
Del	3	12	290	25	1.2
Va	21	108	3,260	334	1.0
W. Va	3	10	418	125	.3
Ky	2	6	60	500	(2)
N. C	16	36	1,264	272	.5
S. C	2	2	69	106	.1
Ga	-	-	-	209	0
Fla	5	6	915	192	.5
Ala	3	4	278	239	.1
Miss	1	1	33	351	(2)
Tenn	1	3	85	489	(2)
La	-	-	-	231	0
Ark	9	21	679	216	.3
Ohio	82	1,665	36,904	673	5.5
Ind	15	190	4,858	421	1.2
Ill	33	405	11,596	564	2.1
Mich	70	1,534	42,306	642	6.6
Wis	68	10,866	306,584	2,140	14.3
Minn	72	1,224	30,427	1,278	2.4
Iowa	88	1,429	31,335	854	3.7
Mo	22	73	1,874	657	.3
N. Dak	10	38	809	274	.3
S. Dak	32	294	6,683	244	2.7
Nebr	30	85	2,550	318	.8
Kans	24	121	3,313	328	1.0
Okla	6	45	1,300	248	.5
Tex	3	4	187	553	(2)
Mont	4	22	895	76	1.2
Idaho	3	12	231	200	.1
Wyo	4	19	753	29	2.6
Nev	1	4	34	15	.2
Utah	10	19	433	94	.5
Colo	9	32	1,149	119	1.0
N. Mex	4	34	1,420	41	3.5
Ariz	3	11	2,564	50	5.1
Wash	18	276	8,445	237	3.6
Oreg	23	160	4,675	157	3.0
Calif	26	335	14,330	813	1.8
Hawaii	-	-	-	-	-
Alaska	1	7	200	-	-
P. R	-	-	-	-	-
Total	905	24,954	698,302	17,398	4.0

1/ Estimated by the Statistical Reporting Service; number of milk cows on farms during year excluding heifers not yet fresh.

2/ Less than one-tenth of one percent.

WEIGH-A-DAY-A-MONTH DAIRY RECORDKEEPING IN THE UNITED STATES
(January 1, 1962)

State	Counties	Herds	Cows	Milk cows in United States 1/	
				Total	In WADAM
	Number	Number	Number	Thousands	Percent
Me	2	6	136	[illegible]	.1
N. H	-	-	-	[illegible]	0
Vt	2	5	125	262	(2)
Mass	1	1	70	94	.1
R. I	-	-	-	14	0
Conn	-	-	-	88	0
N. Y	-	-	-	1,253	0
Pa	-	-	-	882	0
N. J	3	4	172	128	.1
Md	-	-	-	218	0
Del	1	4	90	25	.4
Va	6	6	355	334	.1
W. Va	30	120	2,512	125	2.0
Ky	28	183	4,339	500	.9
N. C	29	108	3,514	272	1.3
S. C	12	42	1,879	106	1.8
Ga	13	35	2,249	209	1.1
Fla	14	35	9,061	192	4.7
Ala	25	59	3,139	239	1.3
Miss	22	129	4,537	351	1.3
Tenn	29	99	2,159	489	.4
La	30	163	9,177	231	4.0
Ark	19	74	1,944	216	.9
Ohio	1	13	504	673	.1
Ind	-	-	-	421	0
Ill	32	257	6,168	564	1.1
Mich	22	67	1,865	642	.3
Wis	-	-	-	2,140	0
Minn	1	1	48	1,278	(2)
Iowa	5	18	212	854	(2)
Mo	53	243	5,826	657	.9
N. Dak	10	73	1,472	274	.5
S. Dak	-	-	-	244	0
Nebr	3	6	150	318	(2)
Kans	25	50	1,000	328	.3
Okla	13	44	1,853	248	.7
Tex	8	18	1,222	553	.2
Mont	-	-	-	76	0
Idaho	3	12	354	200	.2
Wyo	-	-	-	29	0
Nev	-	-	-	15	0
Utah	3	3	30	94	(2)
Colo	1	8	192	119	.2
N. Mex	7	26	2,384	41	5.8
Ariz	-	-	-	50	0
Wash	1	1	30	237	(2)
Oreg	-	-	-	157	0
Calif	1	1	179	813	(2)
Hawaii	3	3	160	-	-
Alaska	-	-	-	-	-
P. R	9	13	1,516	-	-
Total	467	1,936	70,617	17,398	.4

1/ Estimated by the Statistical Reporting Service; number of milk cows on farms during year excluding heifers not yet fresh.
2/ Less than one-tenth of one percent.

THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM
(January 1, 1962)

State	Standard DHIA		Owner-Sampler		Weigh-a-Day-a-Month		Total		Milk cows in U.S.	
	Herds	Cows	Herds	Cows	Herds	Cows	Herds	Cows	Total 1/	In all plans 2/
	Number	Number	Number	Number	Number	Number	Number	Number	Thousands	Percent
Me------	611	22,266	141	3,652	6	130	758	26,048	94	27.7
N. H----	323	13,078	62	1,675	0	0	385	14,753	51	28.9
Vt------	1,110	48,743	650	21,721	5	125	1,765	70,589	262	26.9
Mass----	533	22,504	117	2,810	1	70	651	25,384	94	27.0
R. I----	51	2,585	3	101	0	0	54	2,686	14	19.2
Conn----	505	24,702	88	3,006	0	0	593	27,708	88	31.5
N. Y----	3,856	163,749	3,258	99,942	0	0	7,114	263,691	1,253	21.0
Pa------	4,764	163,530	1,270	33,586	0	0	6,034	197,116	882	22.3
N. J----	562	30,280	132	4,353	4	172	698	34,805	128	27.2
Md------	919	46,985	120	4,250	0	0	1,039	51,235	218	23.5
Del-----	87	3,477	12	290	4	90	103	3,857	25	15.4
Va------	1,140	61,194	108	3,260	6	355	1,254	64,809	334	19.4
W. Va---	157	6,542	10	418	120	2,512	287	9,472	125	7.6
Ky------	522	21,187	6	60	183	4,339	711	25,586	500	5.1
N. C----	777	37,652	36	1,264	108	3,514	921	42,430	272	15.6
S. C----	227	16,606	2	69	48	1,879	277	18,554	106	17.5
Ga------	368	25,942	0	0	35	2,249	403	28,191	209	13.5
Fla-----	126	21,252	6	915	35	9,061	167	31,228	192	16.3
Ala-----	280	21,088	4	278	59	3,139	343	24,505	239	10.3
Miss----	169	9,917	1	33	129	4,537	299	14,487	351	4.1
Tenn----	472	22,874	3	85	99	2,159	574	25,118	489	5.1
La------	69	4,455	0	0	163	9,177	232	13,632	231	5.9
Ark-----	81	3,713	21	679	74	1,944	176	6,336	216	2.9
Ohio----	2,294	75,826	1,665	36,904	13	504	3,972	113,234	673	16.8
Ind-----	1,118	36,301	190	4,858	0	0	1,308	41,159	421	9.8
Ill-----	1,689	60,486	405	11,596	257	6,168	2,351	78,250	564	13.9
Mich----	2,024	73,118	1,534	42,306	67	1,865	3,625	117,289	642	18.3
Wis-----	2,875	109,286	10,866	306,584	0	0	13,741	415,870	2,140	19.4
Minn----	4,097	124,831	1,224	30,427	1	48	5,322	155,306	1,278	12.2
Iowa----	1,859	57,755	1,429	31,335	18	212	3,306	89,302	854	10.5
Mo------	695	26,938	73	1,874	243	5,826	1,011	34,638	657	5.3
N. Dak--	174	5,899	38	809	73	1,472	285	8,180	274	3.0
S. Dak--	216	7,238	294	6,683	0	0	510	13,921	244	5.7
Nebr----	327	12,700	85	2,550	6	150	418	15,400	318	4.8
Kans----	792	31,759	121	3,313	50	1,000	963	36,072	328	11.0
Okla----	173	8,777	45	1,300	44	1,853	262	11,930	248	4.8
Tex-----	436	28,513	4	187	18	1,222	458	29,922	553	5.4
Mont----	87	4,093	22	895	0	0	109	4,988	76	6.6
Idaho---	793	27,100	12	231	12	354	817	27,685	200	13.8
Wyo-----	43	1,342	19	753	0	0	62	2,095	29	7.2
Nev-----	55	3,812	4	34	0	0	59	3,846	15	25.6
Utah----	444	17,739	19	433	3	30	466	18,202	94	19.4
Colo----	306	16,938	32	1,149	8	192	346	18,279	119	15.4
N. Mex--	50	4,848	34	1,420	26	2,384	110	8,652	41	21.1
Ariz----	175	21,210	11	2,564	0	0	186	23,774	50	47.5
Wash----	882	45,113	276	8,445	1	30	1,159	53,588	237	22.6
Oreg----	517	27,500	160	4,675	0	0	677	32,175	157	20.5
Calif---	2,152	329,517	335	14,330	1	179	2,488	344,026	813	42.3
Hawaii--	3	85	0	0	3	160	6	245	-	-
Alaska--	12	340	7	200	0	0	19	540	-	-
P. R----	37	4,970	0	0	13	1,516	50	6,486	-	-
Total or: average	42,034	1,958,355	24,954	698,302	1,936	70,617	68,924	2,727,274	17,398	15.7

1/ Estimated by the Statistical Reporting Service; number of milk cows on farms during year excluding heifers not yet fresh.

2/ Percentage of cows included in the National Cooperative Dairy Herd Improvement Program.

COUNTIES, BY STATE, WITH 20% OR MORE COWS INCLUDED IN THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM

(January 1, 1962)

State	County (Name)	Cows (%)
ALABAMA	Elmore	36
	Montgomery	29
	Russell	28
	Jefferson	24
	Escambia	21
ALASKA	Matanuska Valley	20
ARIZONA	Pima	104
	Pinal	64
	Maricopa	59
	Greenlee	57
	Graham	49
	Cochise	35
CALIFORNIA	Santa Barbara	72
	San Diego	71
	Santa Clara	66
	Santa Cruz	66
	San Joaquin	62
	Marin	61
	Fresno	57
	Monterey	56
	Sonoma	56
	Madera	55
	Stanislaus	53
	Napa	51
	San Bernardino	51
	Tulare	51
	Kern	47
	Del Norte	44
	Merced	44
	Shasta	42
	Los Angeles	40
	Sacramento	40
	San Luis Obispo	40
	Tehama	36
	Butte	34
	Mendocino-Lake	31
	Glenn	30
	Kings	30
	Lassen	30
	Humboldt	29
	Solano-Yolo	29
	Orange	27
	Placer-Nevada	27
	Riverside	25
	Alameda	23
	Yuba-Sutter	21
COLORADO	Chaffee	42
	Fremont	27
	Pueblo	27
	Larimer	25
	Weld	24
	Boulder	22
	Huerfano	22
CONNECTICUT	Litchfield	42
	Middlesex	35
	Tolland	33
	New Haven	31
	Hartford	27
	Windham	25
	New London	20
DELAWARE	Sussex	25
FLORIDA	Leon	79
	Putnam	72
	Seminole	71
	Sarasota	58
	Gilchrist	50
	Manatee	50
	Orange	39
	Jefferson	38
	Volusia	38
	Highlands	35
	Osceola	35
	Madison	28
	Sumter	28
	Lafayette	27
	Washington	27
	Jackson	25
	Nassau	25
	Gadsden	22
	Duval	21
	Escambia	21
	Levy	21
	Martin	20
GEORGIA	Baldwin	73
	Houston	57
	Clarke	51
	Rockdale	49
	Macon	48
	Mitchell	48
	Newton	47
	Walton	44
	Jefferson	41
	Spalding	40
	McIntosh	39
	Sumter	39
	Jones	37
	Peach	35
	Tattnall	34
	Butts	32
	Richmond	32
	Lamar	30
	Henry	27
	Brooks	23
	Jasper	21
HAWAII	Kona	70
ILLINOIS	Kendall	40
	Christian	38
	Kankakee	31
	Stark	27
	Grundy	25
	Lake	25
	Macon	24
	Du Page	23
	Logan	23
	Moultrie	23
	Jackson	22
	DeKalb	21
	Effingham	21
	Jasper	21
INDIANA	Howard	31
	Boone	24
	Cass	24
	Delaware	24
IOWA	Polk	29
	Cerro Gordo	28
	Dallas	28
	Lee	26
	Story	26
	Franklin	24
	Scott	22
	Jasper	21
	Sioux	21
	Sac	20
KANSAS	Comanche	54
	Harvey	32
	Saline	29
	Finney	28
	Harper	27
	Reno	26
	Kiowa	23
	Pawnee	21
	Dickinson	20
	Hamilton	20
LOUISIANA	Rapides	47
	Beauregard	26
	Lafayette	26
	Morehouse	23
	Franklin	22
	Vernon	22
	Richland	21
	West Feliciana	20
MAINE	Androscoggin & Sagadahoe	43
	Oxford	42
	Cumberland	39
	Penobscot	31
	Somerset	31
	Waldo	30
	York	30
	Knox-Lincoln	26
	Kennebec	23
	Piscataquis	20
MARYLAND	Howard	48
	Montgomery	39
	Potomac Valley	35
	Baltimore	29
	Harford	28
	Kent	28
	Anne Arundel	25
	Cecil	24
	Dorchester	24
	Marva	24
	Carroll	22
	Frederick	21
MASSACHUSETTS	Barnstable	45
	Berkshire	36
	Essex	33
MASSACHUSETTS (con't.)	Hampshire	30
	Dukes	28
	Plymouth	28
	Middlesex	26
	Worcester	24
	Franklin	22
MICHIGAN	Ingham	38
	Lenawee	34
	Barry	32
	Jackson	32
	Berrien	31
	Calhoun	31
	Eaton	29
	Washtenaw	28
	St. Joseph	27
	Shiawassee	27
	Kalamazoo	26
	Monroe	25
	Livingston	23
	Mason	23
	Iosco	22
	Lapeer	22
	Muskegon	22
	Tuscola	22
	Clinton	21
	Genessee	21
	Montcalm	21
	Oakland	21
	Alger	20
MINNESOTA	Dakota	38
	Goodhue	26
	Hennepin	26
	Winona	26
	McLeod	25
	Washington	25
	Olmsted	23
	Rice	22
	Faribault	21
	Carver	20
	Freeborn	20
NEBRASKA	Lancaster	21
NEVADA	Lincoln	58
	Douglas	44
	Clark	43
	Churchill	30
NEW HAMPSHIRE	Cheshire	41
	Merrimack	36
	Hillsboro	35
	Sullivan	35
	Grafton	32
	Coos	30
	Belknap	28
	Strafford	22
	Rockingham	21
NEW JERSEY	Gloucester	33
	Hunterdon	33
	Morriss	33
	Burlington	30

COUNTIES, BY STATE, WITH 20% OR MORE COWS INCLUDED IN THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM (con't.)

(January 1, 1962)

State	County (Name)	Cows (%)
NEW JERSEY (con't.)	Somerset	29
	Sussex	29
	Warren	27
	Salem-Cumberland	22
NEW MEXICO	San Miguel	81
	Valencia	79
	Dona Ana	76
	De Baca	67
	Taos	49
	Sierra	41
	Lea	34
	Eddy	32
	Lincoln	32
	Sandoval	23
NEW YORK	Suffolk	47
	Genesee	45
	Ontario	45
	Dutchess	44
	Columbia	38
	Wayne	38
	Monroe	37
	Orleans	36
	Tompkins	36
	Schuyler	34
	Onondaga	33
	Chenango	31
	Schoharie	31
	Chemung	30
	Cortland	30
	Livingston	29
	Delaware	27
	Seneca	26
	Wyoming	26
	Chautauqua	25
	Tioga	25
	Broome	23
	Cayuga	23
	Erie	23
	Ulster	23
	Wash-Warren	22
	Madison	21
	Montgomery	20
NORTH CAROLINA	Carteret	81
	Lenoir	67
	New Hanover	56
	Martin	50
	Washington	45
	Cumberland	44
	Wake	40
	Guilford	36
	Edgecombe	35
	Pitt	32
	Craven	31
	Gaston	31
	Bladen	29
	Columbus	29
	Orange	29
	Durham	28
	Halifax	26
	Pender	26
	Wilson	26
	Beaufort	24
	Cleveland	23
	Henderson	23
NORTH CAROLINA (con't.)	Brunswick	22
	Jones	22
	Randolph	22
	Scotland	22
	Pamlico	21
OHIO	Medina	40
	Clark	39
	Marion	39
	Champaign	35
	Allen	30
	Logan	27
	Auglaize	26
	Lorain	26
	Ashland	25
	Fairfield	24
	Fulton	24
	Greene	24
	Miami	24
	Holmes	23
	Shelby	23
	Huron	22
	Henry	21
	Tuscarawas	21
	Portage	20
OREGON	Clackamas	30
	Washington	30
	Josephine	27
	Multnomah	26
	Deschutes	23
	Klamath	22
	Lane	22
	Marion	21
	Polk	21
PENNSYLVANIA	Allegheny	36
	Clinton	35
	Union	35
	Montgomery	33
	Blair	31
	Dauphin	29
	Bucks	26
	Montour	28
	Luzerne	27
	Centre	26
	Cumberland	26
	Perry	26
	Huntingdon	25
	McKean	24
	Sullivan	24
	Mifflin	23
	Schuylkill	23
	Chester	22
	Lehigh	22
	Wyoming	22
	Columbia	21
	Lancaster	21
	Lebanon	21
	Northumberland	21
	Northampton	20
	Potter	20
RHODE ISLAND	Kent	37
	Washington	25
	Newport	20
SOUTH CAROLINA	Sumter	50
	Calhoun	41
	Bamberg	40
	Saluda	38
	Beaufort	33
	Marlboro	30
	Orangeburg	30
	Colleton	25
	Jasper	25
	Greenville	24
	Newberry	23
	Laurens	21
SOUTH DAKOTA	Butte	32
	Pennington	30
	Lawrence	29
	Custer	27
UTAH	Wasatch	41
	Salt Lake	38
	Summit	37
	Davis	34
	Morgan	30
	Utah	30
	Weber	22
	Sevier	21
VERMONT	Windham	41
	Windsor	37
	Addison	34
	Bennington	33
	Rutland	33
	Franklin	28
	Orange	28
	Washington	27
	Chittenden	26
	Lamoille	24
	Caledonia	23
	Orleans	22
VIRGINIA	Princess Anne	69
	James City	66
	Loudoun	50
	Powhatan	47
	Lancaster	46
	Fairfax	44
	Southampton	44
	Norfolk	43
	Clarke	41
	Nansemond	41
	Culpeper	40
	Orange	38
	Spotsylvania	38
	Prince George	36
	Prince William	36
	Bath	35
	Fauquier	35
	Chas. City	34
	Isle of Wight	34
	Madison	34
	Roanoke	34
	Dinwiddie	32
	Henrico	32
	Pulaski	32
	Hanover	31
VIRGINIA (con't.)	Amelia	30
	Nottoway	30
	Rockingham	30
	Warren	30
	Augusta	28
	Albemarle	27
	King William	27
	Franklin	26
	Rockbridge	25
	Charlotte	24
	Richmond	24
	Brunswick	22
	Amherst	21
	Henry	21
	Wise	21
	Washington	20
WASHINGTON	Walla Walla	51
	Grays Harbor	48
	Jefferson	45
	Thurston	42
	Wahkiakum	42
	Clallam	41
	Pierce	39
	Skagit-Island	38
	Grant	35
	Spokane	35
	Franklin	30
	Kittitas	30
	King	24
	Skamania	23
	Clark-Cowlitz	22
	Kitsap	22
	Pacific	20
	Stevens	20
WEST VIRGINIA	Mason	32
	Harrison	22
	Greenbrier	21
	Jefferson	20
WISCONSIN	Winnebago	39
	Kenosha	34
	Rock	31
	Kewaunee	30
	Walworth	30
	Waukesha	30
	Barron	29
	Ozaukee	29
	Calumet	28
	Manitowoc	27
	Outagamie	27
	Racine	27
	Green Lake	25
	Columbia	24
	Jefferson	24
	Sheboygan	24
	Washington	24
	Dunn	22
	Green	22
	La Crosse	22
	Marquette	22
	St. Croix	22
	Brown	21
	Dodge	21
	Fond du Lac	21
	Polk	21
	Douglas	20
	Oconto	20
	Waupaca	20

NUMBER OF RECORDS PROCESSED IN DHIA COMPUTING CENTERS*
(as reported by State Extension Dairymen, January 1, 1962)

State	DHIA Records		DHIR Records		Owner-Sampler	
	Herds	Cows	Herds	Cows	Herds	Cows
	Number	Number	Number	Number	Number	Number
Ala	204	15,161	15	860	4	278
Alaska	0	0	2	60	0	0
Ariz	37	3,837	7	709	3	201
Ark	78	3,631	3	82	21	679
Calif	0	0	0	0	0	0
Colo	268	14,484	22	1,002	31	829
Conn	264	12,978	64	3,616	64	2,174
Del	82	3,317	5	160	12	290
Fla	13	2,438	14	2,161	0	0
Ga	129	9,013	11	1,005	0	0
Idaho	7	379	1	53	1	8
Ill	1,119	40,599	104	3,545	179	5,904
Ind	990	32,735	128	3,566	9	333
Iowa	1,205	39,213	211	6,949	375	9,287
Kans	328	12,432	62	2,349	18	522
Ky	151	5,800	30	600	0	0
La	4	211	1	132	0	0
Me	325	11,667	43	1,856	81	2,249
Md	403	17,853	89	3,834	90	2,662
Mass	335	14,271	91	3,726	65	1,716
Mich	1,915	68,580	109	4,538	1,225	33,835
Minn	605	19,421	101	3,242	455	10,647
Miss	41	8,967	19	950	1	33
Mo	44	1,392	24	952	8	280
Mont	29	1,537	2	84	22	895
Nebr	126	5,339	29	1,136	80	2,400
Nev	17	1,163	4	236	0	0
N. Hamp	152	5,973	46	1,931	35	948
N. Jer	117	5,792	35	1,750	20	1,000
N. Mex	47	2,613	10	609	0	0
N. Y.	2,590	111,000	342	15,000	2,130	66,000
N. C.	580	28,092	73	4,107	24	920
N. Dak	106	3,425	14	319	24	542
Ohio	625	20,000	126	4,032	221	6,630
Okla	62	3,488	25	1,612	2	82
Oreg	105	5,770	23	1,470	26	911
Pa	4,627	158,214	137	5,316	1,270	33,586
P. R.	2	530	0	0	0	0
R. I.	20	1,294	16	505	2	88
S. C.	185	14,109	40	2,497	2	69
S. Dak	59	1,986	11	401	7	200
Tenn	45	1,923	36	2,026	0	0
Tex	181	11,765	45	2,925	2	109
Utah	435	17,352	9	387	19	433
Vt	403	17,719	56	1,902	155	4,872
Va	557	30,122	86	6,090	72	2,163
Wash	134	7,000	33	1,941	9	164
W. Va	82	2,762	10	324	3	66
Wis	1,843	69,934	329	12,502	4,004	112,913
Wyo	40	1,215	2	108	19	753
Total	21,716	868,496	2,695	115,157	10,790	307,671

*WADAM Records: Louisiana, 163 herds, 9,177 cows; Michigan, 67 herds, 1,865 cows; South Carolina, 48 herds, 1,880 cows; Utah, 3 herds, 30 cows; West Virginia, 120 herds, 2,512 cows.
Total - 401 herds, and 15,464 cows.

OFFICIALS IN CHARGE OF DAIRY-HERD-IMPROVEMENT ASSOCIATIONS IN THE STATES

Ala------ R. Sam Jones, Ext. Service, Auburn University, Auburn.
Alaska--- W. J. Sweetman, Ext. Service, University of Alaska, Palmer.
Ariz----- W. R. Van Sant, Ext. Service, University of Arizona, Tucson.
Ark------ Morris B. Ewing, Ext. Service, P. O. Box 391, University of Arkansas, Little Rock.
Calif---- C. L. Pelissier, Ext. Service, University of California, Davis.
Colo----- Dawson C. Jordan, Ext. Service, Colorado State University, Fort Collins.
Conn----- Robert H. Benson, Ext. Service, University of Connecticut, Storrs.
Del------ W. R. Hesseltine, Ext. Service, University of Delaware, Newark.
Fla------ C. W. Reaves, Ext. Service, University of Florida, Gainesville.
Ga------- W. H. McKinney, Ext. Service, University of Georgia, Athens.
Hawaii--- Harvey M. Vollrath, Ext. Service, University of Hawaii, Honolulu 10.
Idaho---- George W. Cleveland, Dairy Ext. Division, University of Idaho, 317 1/2 N. 8th St., Boise.
Ill------ J. G. Cash, Ext. Service, University of Illinois, Urbana.
Ind------ S. M. Gregory, Ext. Service, Purdue University, W. Lafayette.
Iowa----- D. E. Voelker, Ext. Service, Morrill Hall, Iowa State University, Ames.
Kans----- E. Ralph Bonewitz, Ext. Service, Kansas State University, Manhattan.
Ky------- E. C. Troutman, Ext. Service, University of Kentucky, Lexington 29.
La------- N. J. Matherne, Ext. Service, Louisiana State University, Baton Rouge 3.
Me------- Norman R. Ness, Ext. Service, University of Maine, Orono.
Md------- J. L. Cason, Ext. Service, University of Maryland, College Park.
Mass----- C. H. Parsons, Ext. Service, University of Massachusetts, Amherst.
Mich----- L. A. Johnson, Ext. Service, Michigan State University, East Lansing.
Minn----- Ralph W. Wayne, Ext. Service, University of Minnesota, St. Paul 1.
Miss----- George B. Crain, Ext. Service, Mississippi State University, State College.
Mo------- E. T. Itschner, Ext. Service, University of Missouri, Columbia.
Mont----- Earl J. Peace, Ext. Service, Montana State College, Bozeman.
Nebr----- C. W. Nibler, Ext. Service, University of Nebraska, Lincoln 1.
Nev------ James D. Schuh, Ext. Service, University of Nevada, Reno.
N. H----- Hilton Boynton, Ext. Service, University of New Hampshire, Durham.
N. J----- E. T. Oleskie, Ext. Service, Rutgers University, New Brunswick.
N. Mex--- Borden Ells, Ext. Service, N. Mex. State University, University Park.
N. Y----- Raymond Albrectsen, Ext. Service, Cornell University, Ithaca.
N. C----- M. E. Senger, Ext. Service, N. C. State College, State College Station, Raleigh.
N. Dak--- George Fisher, Ext. Service, N. Dak. Agricultural College, State College Station, Fargo.
Ohio----- R. A. Porterfield, Ext. Service, Ohio State University, Columbus 10.
Okla----- J. E. Pendleton, Ext. Service, Oklahoma State University, Stillwater.
Oreg----- D. E. Anderson, Ext. Service, Oregon State College, Corvallis.
Pa------- D. N. Putnam, Ext. Service, Pennsylvania State University, University Park.
P. R----- Cesar A. Calderon, Ext. Service, University of Puerto Rico, Rio Piedras.
R. I----- John W. Atwood, Ext. Service, University of Rhode Island, Kingston.
S. C----- C. H. Lomas, Ext. Service, Clemson Agricultural College, Clemson.
S. Dak--- Hollis D. Hall, Ext. Service, S. Dak. State College, Brookings.
Tenn----- V. D. Parsons, Ext. Service, University of Tennessee, P. O. Box 1071, Knoxville 7.
Tex------ J. W. Davis, Jr., Ext. Service, Texas A. & M. College, College Station.
Utah----- John J. Barnard, Ext. Service, Utah State University, Logan.
Vt------- W. P. Leamy, Ext. Service, University of Vermont, Burlington.
Va------- J. A. Lineweaver, Ext. Service, Virginia Polytechnic Institute, Blacksburg.
Wash----- K. I. Gross, Ext. Service, Washington State University, Pullman.
W. Va---- W. L. Northern, Ext. Service, West Virginia University, Morgantown.
Wis------ E. E. Starkey, Ext. Service, University of Wisconsin, Madison 6.
Wyo------ I. W. Slater, Ext. Service, University of Wyoming, Laramie.

GPO 925851

Growth Through Agricultural Progress

23
3d

National Cooperative Dairy Herd Improvement Program

RECORD BOOK

A plan for every size herd

STANDARD DHIA OWNER SAMPLER WEIGH-A-DAY-A-MONTH

AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

JU 19
Y OF ILLINOIS

ARS-44-117
Dairy-Herd-Improvement Letter (Vol. 38, No. 5)

May 1962

COMPARISON OF DHIA COWS AND NON-DHIA COWS

Usually the production level of DHIA cows is compared with the production level of all cows in the United States.

The following is a comparison of the production level of DHIA cows with that of non-DHIA cows in the United States.

Year	AVERAGE PRODUCTION			
	DHIA Cows		Non-DHIA Cows	
	Milk	Butterfat	Milk	Butterfat
1930	7,642	303	4,435	174
1940	8,133	331	4,519	179
1950	9,172	370	5,112	202
1961	10,796	418	6,780	254

In 1961 DHIA cows exceeded non-DHIA cows in milk production by 4,016 pounds.

The milk-producing efficiency of DHIA cows has been developed by DHIA members using their DHIA records to guide them in improving their herds by improving their culling, feeding, selection and herd management practices.

"Make Dairying Pay the Record Way," is not just a statement--it works.

Issued June 1962

1862 1962

Growth Through Agricultural Progress

NUMBER OF 1961-62 RECORDS INCLUDED IN THE MASTER TAPE FILE FOR COMPILING SIRE SUMMARY RECORDS DURING JUNE-JULY OPERATIONAL RUN

State	Production Records Reported 1/		State	Production Records Reported 2/	
	Number	Percent		Number	Percent
Ala	13,317	63.1	Nebr	6,719	52.9
Alaska	53	15.6	Nev	699	18.3
Ariz	3,727	17.6	N. H	11,094	84.8
Ark	2,867	77.2	N. J	16,379	54.1
Calif	7,643	2.3	N. Mex	1,081	22.3
Colo	4,032	23.8	N. Y	166,659	101.8
Conn	19,457	78.8	N. Car	29,347	77.9
Del	4,423	127.2	N. Dak	4,880	82.7
Fla	6,505	30.6	Ohio	45,005	59.4
Ga	9,918	38.2	Okla	4,454	50.7
Hawaii	83	97.6	Oreg	19,401	70.5
Idaho	8,038	29.7	Pa	65,512	40.1
Ill	47,445	78.4	P. R	75	1.5
Ind	33,379	92.0	R. I	2,501	96.8
Iowa	48,890	84.7	S. Car	12,097	72.8
Kans	20,317	64.0	S. Dak	2,484	34.3
Ky	8,800	41.5	Tenn	6,212	27.2
La	1,440	32.3	Texas	14,234	49.9
Maine	19,208	86.3	Utah	12,494	70.4
Md	32,186	68.5	Vt	30,364	62.3
Mass	23,686	105.3	Va	46,571	76.1
Mich	66,038	90.3	Wash	21,628	47.9
Minn	58,977	47.2	W. Va	6,887	105.3
Miss	4,059	40.9	Wis	83,781	76.7
Mo	10,060	37.3	Wyo	379	28.2
Mont	1,609	39.3			
			Total	1,067,094	54.5

1/ Based on number cows on test January 1, 1962.

2/ Includes lactation records completed over more than a 12-month period.

23
3d

National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA OWNER SAMPLER WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-118
(Vol. 38, No. 6)

Dairy-Herd-Improvement Letter

June-July 1962

DHIA RULES
(Revised and Approved June 1962)

Rule 1. STANDARD EQUIPMENT AND METHODS

All equipment and methods shall conform to the standards and methods set by the American Dairy Science Association and/or the State Regulatory Agency. The accuracy of all equipment shall be checked as frequently as necessary to insure that equipment is operating within the standards established by ADSA.

The ADSA Dairy Records Committee will offer an opinion of accuracy of equipment or method when they have been tested and results published by three or more Colleges, experiment stations or independent research laboratories. The responsible supervising agency and/or the regulatory agency in each state shall have authority to approve equipment or methods found to produce results within tolerances established by the ADSA Dairy Records Committee.

Tolerances are as follows:

a. Butterfat test on individual cows should be within plus or minus 0.2 of the fat test obtained by conventional sampling methods.

b. Daily milk weights as compared to an accurate scale should be within 3 percent or one-half pound whichever is the greater, and the error should be random so it will cancel with repeated sampling.

90 percent of the tests and weights should fall within these limits.

Issued August 1962

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Rule 2. COOPERATION OF OWNER

Owners must make available all registration certificates and other information for permanent identification of animals on test and of their offspring. They must provide the supervisor with freshening and dry dates, purchase and sale dates, abortion dates and death dates. When requested they must cooperate and assist the supervisor in obtaining feed weights, roughage quality, value of product, breeding dates and any information needed for the calculation of complete DHIA records.

Rule 3. IDENTIFICATION OF ANIMALS

Every animal in DHIA herds must be positively identified and recorded in the owner's herd book within 60 days after entering the herd by birth or purchase. A herd registry page is provided for this purpose. Cows on test must be permanently identified with (1) registration number if registered, or (2) uniform series eartags as used in DHIA, disease eradication and artificial breeding (state code 1-, 2-, or 3-letter prefix, 4 digits).

The supervisor shall verify the identity of each cow when entered on test, by registration certificates, if registered, or by eartag numbers, if not registered, and record the information on appropriate forms. Thereafter, at each milking the supervisor must assure himself of the correct identity of each cow as she is milked.

Tattoo numbers, branded numbers, or private eartags are acceptable identification provided that they are cross indexed to one of the above identification systems.

Supplemental Identification

Neck chains, strap numbers, or other numbering systems may be used on young stock until they enter the milking herd. They also may be used as secondary identification for milking cows provided that they are cross-indexed with permanent identification.

Rule 4. PRODUCTION REPORTS

DHIA lactation records shall be computed and reported for every cow on test for each calving. Monthly and yearly herd reports shall also be computed and reported as required by the county and state extension service.

Rule 5. COWS TO BE TESTED

DHIA records must be kept on all dairy cows in the herd or on the farm that have ever calved, regardless of ownership, except as specified in the rule on permanent nurse cows. DHIA herds shall consist of all cows that have freshened at least once, located on one or more farms under one management.

Members owning or operating more than one farm may divide their herds into farm units, and each may be tested as a separate unit when the units are maintained as separate herds and there is no shifting of cows between herds. In single herds involving two or more distinctly individual breeds, separate herd averages or a composite herd average may be calculated and reported as such.

The owner or his management is required to report to the supervisor all cows added to or removed from the herd since the previous test, as well as first-calf heifers that have calved.

In any case involving the questionable assignment of cows to a herd to influence a herd average, the decision of the local or State Board of Directors in council with the State Extension Dairyman in Charge of Production Testing shall be considered final. In special cases involving joint operation of herds or groups of cows the local board of directors in council with the State Extension Dairyman shall decide the policy.

Rule 6. MONTHLY AND BIMONTHLY TESTING

Associations may operate on the monthly or bimonthly basis or on both, as approved by the State Extension Dairyman.

Rule 7. NUMBER OF COWS TESTED DAILY

The number of cows and herds tested daily shall be left to the judgement and discretion of the DHIA board of directors and State Extension Dairyman concerned. They will consider the ability of the supervisor, milking facilities and type of records being kept.

The number of cows tested shall be limited as much as necessary to allow sufficient time for the supervisor on each visit to the farm to properly comply with all the Standard DHIA Rules, such as the identification of all animals in the herd, including eartagging when necessary; proper supervision of milking, including the identification of the cows being milked; using the proper procedures and methods of sampling, including the handling of samples and the use of a locked sample case; obtaining and using his own data; properly recording data on the barn sheet; keeping the owner's herd book up-to-date; and making all required monthly, yearly and lactation reports. Sufficient time also shall be allowed for the supervisor to check all his work and reports for accuracy before leaving the farm.

Rule 8. SUPERVISION OF MILKERS AND COWS

The herd owner shall milk his cows in such order that on the testing day cows being milked at the same time will be in close proximity and full view of the supervisor for observation.

The supervisor must be in position to observe the milkers, machines and cows during the entire milking process.

Rule 9. SUPERVISOR USES OWN DATA

The supervisor, or a person or central processing service authorized and approved by the State Extension Dairyman and the responsible organization, shall compute the production records for a testing period from the data obtained on the testing date.

Rule 10. CENTERING THE TESTING DAY

Production records shall be calculated by centering the testing day according to the method outlined in the DHIA Supervisor's Manual. All tests shall be applied to the testing period in which made.

Rule 11. SUPERVISOR'S ROUTE

In order that the herd owner may not know the exact day the supervisor will visit a farm, the supervisor shall from time to time vary his visits to each farm as much as 3 days ahead of, or 3 days after, the centering day.

Rule 12. LOCK SAMPLE CASES

All milk samples, glassware and the current monthly barn sheet with recorded test day data shall be securely locked by supervisor when they are not under his immediate observation.

Rule 13. METHODS OF SAMPLING

All weighing, sampling and recording of each milking of each cow for the 24-hour period must be done by the supervisor or person authorized by the local DHIA board of directors. Each cow's milk must be thoroughly mixed immediately before sampling.

Rule 14. LOST SAMPLES

When a sample is lost, the previous month's butterfat test shall be used. When milk weights are not obtained, the pounds of milk for the current testing day shall be estimated from the previous month's record by use of the nurse-cow table in the DHIA Supervisor's Manual. In either case, the record shall be marked estimated."

Rule 15. ABNORMAL TESTS

In cases of severe sickness or injury, except for the first month of lactation, a 40 percent change in total daily pounds of fat from the preceding test shall be considered abnormal.

Abnormal high or low records due to causes such as sickness, severe injury and off feed shall be handled similarly to lost samples.

Rule 16. RETESTS, OWNER'S REQUEST

If for any reason a herd owner is not satisfied with the test on his herd, he may call for a retest. The herd owner shall pay the cost of the retest unless otherwise determined by the local board of directors. The use of the requested retest and the regular test shall be at the discretion of the State Extension Dairyman.

Rule 17. SURPRISE TESTS - DHIA

Surprise tests may be conducted for verification of records of high producing cows and herds and for investigation of rule infractions. They may be ordered by the state or local organization and/or the State Extension Dairyman.

The use of the surprise test and the payment thereof shall be determined by the organization requiring such tests. Surprise tests shall be preceded by a preliminary dry milking.

Rule 18. SURPRISE TESTS - DHIR

The DHIR surprise test rules are as follows:

A. One surprise test with a preliminary dry milking is required when:

   1. A herd has a rolling herd average of 500 pounds butterfat or more for 6 consecutive months.

   2. A herd has a cumulative average of 300 pounds butterfat or more in the first 6 months of a testing year.

   3. A herd has an average of 500 pounds butterfat or more for the year.

B. If, after the first 90 days of a lactation, the record of a cow averages 3 pounds or more of fat per day, one surprise test with preliminary milking shall be made within the next 2 months. If, after the first 90 days of lactation, the cow's record averages 3.5 pounds of fat or more per day, a second surprise test with preliminary milking shall be made before the 305th day of lactation. These surprise tests shall include the entire herd, except that in herds requiring more than 1 day's supervision only the cows meeting the surprise test requirements need be included.

Use of Surprise Test

Surprise tests with preliminary milking shall be conducted whenever possible in addition to the regular monthly tests. In computing the monthly credits for a cow or herd, results of the surprise test shall be used in lieu of those of the regular monthly test. The breed registry organization shall be notified of the cows and herd on which surprise tests have been scheduled or conducted. The herd owner will pay the costs of the first surprise test made during the calendar year and the breed registry organization will pay for all other extra tests made as required above during the remainder of that calendar year.

Rule 19. FRESH COWS - DRY COWS - COWS SOLD

A cow shall not be tested until the seventh day after she calves, counting the day of calving as the first day. The record, however, is started on the fourth day after calving, counting the calving day as the first day. Cows freshening after the supervisor's regular visit and before the end of the testing period shall be given credit for their production during that period, as calculated on the basis of the results of the next test. Dry cows - the dry date is the first day the cow is not milked. The day a cow is sold and leaves the herd counts as the last day in the herd, and she gets production for that full day.

Rule 20. ABORTING COWS OR COWS FRESHENING WITHOUT GOING DRY

In case a cow aborts while dry, her record shall be figured the same as for a fresh cow. If she aborts while in milk and has carried a calf less than 152 days, her current record shall continue without interruption. If a breeding date is not available and the cow aborts while in milk for less than 200 days, her current record shall continue without interruption. Otherwise the current record shall end and a new lactation shall begin.

Rule 21. COWS NURSING CALVES

Temporary Nurse Cow

Cows nursing calves on the testing day are considered on test. Records other than production are taken as usual and recorded in the herd-record book. No milk samples are taken. Milk weights and tests obtained on the last testing day before calves are put on cows or on the first testing day after calves have been removed are used in computing production for the testing period in which calves are nursed, along with the nurse-cow table in DHIA Supervisor's Manual. The recorded number of days in milk for the lactation shall include the number of days the cows nursed calves during the lactation period.

If records are calculated by a computing center, they will be coded as required.

Permanent Nurse Cow

At the request of the herd owner, a cow that is to be used as a nurse cow throughout the entire lactation period may be removed from test from the date of freshening until the following date of freshening, provided she has at least one complete lactation record.

Permanent nurse cows are to be re-entered on test at the following calving unless they are requalified. Cows are disqualified as permanent nurse cows if at any time they are milked by machine or by hand.

Rule 22. YEARLY HERD AVERAGES

The yearly herd average is calculated on a cow-year basis. As outlined in the footnotes on the monthly herd summary, DHIA-12, the total number of cow-days on test for the year is divided by 365 (366 in a leap year) to obtain the number of cow-years. The totals for the year are divided by the number of cow-years to obtain the herd averages for the year.

Rule 23. YEARLY ASSOCIATION AVERAGE

The association average is found by dividing the total pounds of milk and total pounds of butterfat by the total cow-years.

Rule 24. COMPUTING FRACTIONS

The weights of milk at each milking and the day's total of milk are to be recorded to the nearest one-tenth of a pound, the month's milk to the nearest 10 pounds. Butterfat tests shall be recorded to the nearest one-tenth of a percent and monthly butterfat to the nearest pound. The price per hundredweight of milk and feed may be taken to the nearest 10 cents. The value of product and cost of feed may be to the nearest whole dollar. If the fraction is less than half, drop it. If half or more, change to the next highest number.

Rule 25. FRAUDULENT PRACTICES

Any practice that is intended to create or does create any abnormal percentage of butterfat or an abnormal yield of milk is a violation of DHIA rules. Fraudulent practices shall be referred to the local DHIA board of directors for their consideration. The local board of directors shall decide what action is necessary to prevent or correct such practices.

Rule 26. RELATION OF SUPERVISORS AND OWNERS

As an employee of the local dairy herd improvement association, the supervisor's duty is to see that the tests are honestly made, accurately recorded and completely reported. No payment, gift or gratuity to supervisor is permitted from the owner of a cow or anyone interested in her. The supervisor may act as a collecting agent for the association. He may collect payment for dues and fees for the association, provided a receipt is given the member and a carbon copy of the same receipt is given to the association treasurer. The supervisor shall not test his own herd nor the herd of the immediate members of his family. The supervisor is not at liberty to decide which rules are essential and which are not, but is required to observe all of them in detail. Owners or persons in their employ are equally held responsible with the supervisor for enforcement of these rules.

ERRATA:

The 1961 figure 435,592 reported on page 2 of the March Letter refers to the number of cows bred to beef bulls.

UNITED STATES DEPARTMENT OF AGRICULTURE
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AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-119
Dairy-Herd-Improvement Letter
(Vol. 38, No. 7)

August 1962

6.67 MILLION DHIA LACTATION RECORDS IN MASTER MAGNETIC TAPE FILE

During the sire summary process the Master File of DHIA lactation records is up-dated with currently reported lactation records and corrected lactation records returned from the States. During the current tabulation records received prior to May 1, 1962 were edited and included in the file.

The tabular material on the following pages shows the number of records and number of cows by breed of sire, represented in the Master File as the up-dating process was completed in August, 1962.

In the screening process 135,272 lactation records were returned to the States because of errors or discrepancies. Two thorough editing operations are carried out, one as the incoming current data are verified and one as the current records are placed in the Master File. In these processes a record is removed for one of two reasons: (1) errors in reporting (2) conflict with other reports received on the same cow.

Accurate and complete reporting is essential for the use of production records in selecting animals for genetic improvement. The responsibility for accurate reporting ultimately rests upon the herd owner and the supervisor. To insure the accuracy of data used for sire evaluation and to aid the States in improving the accuracy of reporting, the records received are thoroughly screened, as indicated on form DHIA-1060-A.

The current data surviving editing increased the size of the Master File of lactation records to 6,671,089, representing 3,111,433 cows. These data activated 18,882 sires for tabulation.

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Issued September 1962

Table 1. Contents of DHIA Master File and Sires Selected for Summarization, 08-62

Breed	Sires Selected for Summary	Master File Sires	Master File Cows	Master File Lactations
Ayrshire	801	16,493	109,925	273,652
Guernsey	5,543	60,023	447,557	1,039,987
Holstein	8,873	151,076	1,377,641	3,241,651
Jersey	2,956	44,445	313,702	756,170
Brown Swiss	519	13,489	76,766	191,225
Milking Shorthorn, Red Dane, Red Poll	190	7,966	29,754	62,200
Lacking Sire Number	-	-	756,088	1,106,204
Total	18,882	293,492	3,111,433	6,671,089

PRODUCTION RECORDS REPORTED TO THE DAIRY CATTLE RESEARCH BRANCH BY STATE EXTENSION SERVICES, FOR THE PERMANENT FILES DURING 1961 and 1962

State	First 6 months of 1962							1961	
	Cows on test in all association herds on January 1	Production records reported 1/ 2/	Herd Test Records Reported by -- American Guernsey Cattle Club	Herd Test Records Reported by -- American Jersey Cattle Club	Total records reported		Records Returned 3/	Production records reported 2/	
	Number	Number	Number	Number	Number	Percent	Number	Number	Percent
Maine	22,266	7,426	12	3	7,441	33.4	111	19,178	86.9
N. H	13,078	4,301	36	9	4,346	33.2	75	10,006	81.7
Vt	48,743	14,311	35	167	14,513	29.8	281	25,431	53.2
Mass	22,504	9,766	108	95	9,969	44.3	41	20,056	88.0
R. I	2,585	789	29	85	903	34.9	6	2,296	84.8
Conn	24,702	8,318	237	-	8,555	34.6	131	17,069	69.0
N. Y	163,749	68,430	278	166	68,874	42.1	4	143,262	91.1
Pa	163,530	32,228	496	55	32,779	20.0	449	135,246	86.6
N. J	30,280	6,349	551	95	6,995	23.1	212	15,303	54.2
Md	46,985	11,698	147	91	11,936	25.4	48	28,424	61.2
Del	3,477	1,703	75	-	1,778	51.1	1	3,819	99.7
Va	61,194	19,249	156	43	19,448	31.8	213	48,405	80.7
W. Va	6,542	2,551	10	10	2,571	39.3	38	6,032	65.8
Ky	21,187	6,420	37	121	6,578	31.0	132	6,061	35.0
N. C	37,652	12,201	262	62	12,525	33.3	52	26,348	75.5
S. C	16,606	5,420	223	-	5,643	34.0	3	10,942	79.0
Ga	25,942	4,574	121	29	4,724	18.2	39	8,979	40.0
Fla	21,252	4,492	176	8	4,676	22.0	69	4,810	22.5
Ala	21,088	6,163	6	12	6,181	29.3	10	11,707	58.3
Miss	9,917	1,795	91	41	1,927	19.4	31	3,253	37.5
Tenn	22,874	2,445	253	135	2,833	12.4	-	5,558	28.7
La	4,455	505	179	44	728	16.3	12	1,177	26.4
Ark	3,713	1,849	86	44	1,979	53.3	-	2,041	71.7
Ohio	75,826	20,675	1,116	552	22,343	29.5	364	45,260	67.9
Ind	36,301	17,024	131	98	17,253	47.5	6	22,285	56.8
Ill	60,486	18,249	258	126	18,633	30.8	140	50,808	87.5
Mich	73,118	32,981	111	161	33,253	45.5	-	60,801	91.5
Wis	109,286	45,822	46	46	45,914	42.0	-	121,765	121.4
Minn	124,831	31,143	90	28	31,261	25.0	765	67,147	58.9
Iowa	57,755	37,240	-	52	37,292	64.6	91	33,904	59.3
Mo	26,938	5,066	147	69	5,282	19.6	146	9,652	37.2
N. Dak	5,899	3,598	-	-	3,598	61.0	70	3,974	67.1
S. Dak	7,238	1,901	-	-	1,901	26.3	5	1,905	29.3
Nebr	12,700	5,529	212	16	5,757	45.3	24	5,072	42.2
Kans	31,759	13,842	80	33	13,955	43.9	82	14,655	50.5
Okla	8,777	3,696	51	86	3,833	43.7	49	2,228	28.1
Tex	28,513	6,829	153	310	7,292	25.6	29	11,926	48.0
Mont	4,093	877	44	-	921	22.5	-	1,776	31.2
Idaho	27,100	3,381	102	21	3,504	12.9	107	8,203	31.3
Wyo	1,342	289	10	-	299	22.3	-	397	20.5
Nev	3,812	525	-	13	538	14.1	-	291	8.4
Utah	17,739	10,811	-	-	10,811	60.9	-	10,942	62.7
Colo	16,938	3,167	20	6	3,193	18.9	-	2,413	13.8
N. Mex	4,848	699	88	24	811	16.7	3	932	18.7
Ariz	21,210	2,998	47	1	3,046	14.4	5	3,213	15.3
Wash	45,113	8,633	525	90	9,248	20.5	109	23,297	48.3
Oreg	27,500	9,994	291	231	10,516	38.2	190	19,470	65.6
Calif	329,517	3,666	579	164	4,409	1.3	144	6,838	2.2
P. R	4,970	193	-	-	193	3.9	-	38	.8
Hawaii	85	34	-	-	34	40.0	-	80	58.0
Alaska	340	18	-	2	20	5.9	-	124	-
U. S	1,958,355	521,863	7,705	3,444	533,012	27.2	4,287	1,084,799	58.1

1/ Includes cows enrolled since January 1, 1962.
2/ Production records reported on DHIA-718 and DHIA-1095.
3/ Records returned to States because of inconsistent or incomplete data.

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Dairy-Herd-Improvement Letter
ARS-44-121
(Vol. 38, No. 8)
September 1962

1960 U. S. LACTATION AVERAGES

For DHIA cows calving in the year 1960, 741,264 lactation records reported for sire evaluation purposes survived ADP editing procedures. These excluded records for which no distinct breed was reported. The nationwide 305-2x-ME average for the 1960 calving year was 11,333 pounds of milk and 441 pounds of butterfat.

This represents an increase of 403 pounds of milk and 13 pounds of fat over the 1959 calving year. This increase may have been caused by any combination of factors such as genetic improvement, increasing levels of herd feeding and management, yearly weather differences, or changes in relative proportions of the various breeds.

Registered cows comprise 52 percent of the 741,264 lactation records reported for the 1960 calving year. Overall registered animals slightly excelled non-registered animals, 11,369 milk-453 fat to 11,294 milk-427 fat. Extreme caution should be exercised in the use of these lactation averages. Comparisons based upon gross averages may be influenced in varying degrees by differences in breeding value and levels of herd management and feeding. For example, herds composed of predominately registered animals may be characterized by somewhat higher levels of environment than herds composed of non-registered animals. Other factors to be considered are (1) the possibility of differential degrees of culling in registered and non-registered herds and (2) possible differences in the extent of the use of artificial insemination in registered herds as compared to herds largely composed of non-registered cows.

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Issued October 1962

One point which seems evident from these averages is that relatively more attention appears to have been given to butterfat in the registered populations than in the non-registered populations. It is of interest that only the Holstein averages for registered cows excelled the milk production of non-registered cows.

Valid comparisons of these two groups of animals can only be made by comparing registered cows to non-registered animals calving in the same herd, year, and season.

More extensive lactation tabulations by breed, State, month of freshening and registered *versus* non-registered will be printed and supplied to the Extension Dairyman in each State.

Nationwide DHIA 305-2x-ME Lactation Averages, 1960 Calving Year

	Registered			Non-Registered			All		
Breed	Number	Milk	Fat	Number	Milk	Fat	Number	Milk	Fat
Ayrshire	15,483	9,797	399	3,596	10,292	399	19,079	9,891	399
Guernsey	71,382	8,720	420	37,467	9,739	404	108,849	9,071	415
Holstein	239,342	12,919	474	288,438	11,661	431	527,780	12,231	451
Jersey	43,552	8,112	425	20,908	9,233	408	64,460	8,475	419
Brown Swiss	13,949	10,871	447	3,564	11,188	437	17,513	10,935	445
Milking Shorthorn	2,803	8,395	321	494	10,728	409	3,297	8,745	334
Red Dane	-	-	-	167	10,096	409	167	10,096	409
Red Poll	99	7,445	311	20	8,419	336	119	7,609	315
All Breeds	386,610	11,369	453	354,654	11,294	427	741,264	11,333	441

NOVEMBER 15, 1962

DEADLINE FOR REPORTING LACTATION RECORDS

DHIA-718 - DHIA-1095

Sire tabulations are to be made at six-month intervals in the future. To be included in the tabulations scheduled for January, 1963, all available lactation records should be reported to the Branch by November 15, 1962.

Supervisors should report manually calculated lactation records on form DHIA-718 as they are completed. Computing centers should report all available lactation records on form DHIA-1095 or on magnetic tape.

DEADLINE FOR REPORTING LACTATION RECORDS

NOVEMBER 15, 1962

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ARS-44-123
Dairy-Herd-Improvement Letter (Vol. 38, No. 9)

October 1962

DHIA COWS AVERAGE MORE THAN 11,000 POUNDS OF MILK

During the year 1961-62, DHIA cows broke their own record again by producing, on the average, 11,032 pounds of milk and 426 pounds of butterfat.

The table on the following page gives the average production of DHIA cows by State, including herds for which only milk and fat production were reported.

The table on page 3 gives the average production and feed consumption on a cow-year basis of DHIA cows by State for the cows and herds tabulated.

On the average, dairymen fed 3,600 pounds of concentrates per cow--400 pounds more than in 1960-61; 8,200 pounds of succulent forage--400 pounds more than in 1960-61; 4,000 pounds of dry forage--100 pounds more than last year, and had cows on pasture 165 days--2 more than in 1960-61.

The increased production average denotes real improvement, but there were 4 herds with 154 cows reported producing less than 3,500 pounds of milk per year. There were 133 more herds with 6,566 cows reported producing less than 5,500 pounds of milk per year. These cows are doing little more than breaking even, if that well.

The other side of the story is that 8,963 herds, including 336,368 cows, produced 11,500 pounds of milk or more and 183 herds with 6,763 cows produced over 15,500 pounds of milk. Cows producing at the level of 15,500 pounds are as a group yielding a substantial return over feed costs to the dairyman.

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SUMMARY OF THE 1961-62 DAIRY-HERD-IMPROVEMENT ASSOCIATION RECORDS, BY STATES 1/

State Code	State Name	Herd Records Complete and Incomplete	Cow-Years	Average Production Milk	Average Production Test	Average Production Fat
		Number	Number	Pounds	%	Pounds
11	Maine	577	21,009	10,789	4.0	433
12	New Hampshire	282	11,122	10,810	4.1	441
13	Vermont	835	35,422	10,197	4.0	412
14	Massachusetts	487	20,468	11,174	4.0	449
15	Rhode Island	50	2,376	11,018	3.9	425
16	Connecticut	448	20,784	11,404	4.0	452
21	New York	2,774	122,029	11,764	3.7	439
22	New Jersey	406	21,078	10,803	3.9	416
23	Pennsylvania	4,261	142,929	10,820	3.9	424
31	Ohio 2/	1,441	47,490	11,026	3.8	421
32	Indiana	805	26,388	10,899	3.9	430
33	Illinois	1,522	52,773	10,941	3.9	423
34	Michigan	1,824	61,636	11,094	3.8	418
35	Wisconsin	2,621	98,146	11,114	3.8	422
41	Minnesota 2/	2,514	73,195	11,170	3.7	413
42	Iowa	1,519	47,282	10,539	3.8	402
43	Missouri	507	20,060	10,052	4.0	401
45	North Dakota	63	1,990	10,974	3.7	404
46	South Dakota	189	5,851	10,897	3.6	394
47	Nebraska	218	8,257	10,642	3.9	410
48	Kansas 2/	399	14,231	10,682	3.9	412
50	Delaware	96	3,853	10,216	3.9	395
51	Maryland	715	34,573	10,474	3.9	412
52	Virginia	1,068	56,746	10,503	3.9	409
54	West Virginia	226	8,552	9,443	3.9	365
55	North Carolina	493	23,691	10,004	3.8	382
56	South Carolina	175	12,112	8,854	4.0	353
57	Georgia	151	11,391	8,971	3.9	353
58	Florida	107	17,195	7,826	4.2	327
61	Kentucky	290	10,888	9,842	3.9	379
63	Tennessee	213	9,585	8,588	4.2	359
64	Alabama	217	16,593	7,959	4.0	319
65	Mississippi	95	5,649	7,342	4.3	314
71	Arkansas	49	2,112	8,979	3.8	337
72	Louisiana	18	1,125	7,626	4.0	306
73	Oklahoma	56	2,544	10,052	3.7	373
74	Texas	302	19,955	9,255	3.9	360
81	Montana	91	3,925	10,973	3.7	411
82	Idaho	546	18,165	10,791	3.9	425
83	Wyoming	28	907	10,961	3.7	402
84	Colorado	245	13,246	10,806	3.8	415
85	New Mexico	53	4,818	10,478	3.9	405
86	Arizona	160	19,006	11,638	3.7	429
87	Utah	405	15,791	11,911	3.7	444
88	Nevada	41	2,462	11,420	3.7	417
91	Washington	756	38,356	11,390	4.0	457
92	Oregon	424	22,280	9,726	4.3	420
93	California	2,005	298,406	12,286	3.8	473
94	Puerto Rico	26	3,361	7,186	3.5	248
95	Hawaii	1	25	6,643	3.9	259
Total or average		32,794 3/	1,531,826	11,032	3.9	426

1/ Includes incomplete records.

2/ Herds from the following States were omitted through error: Kansas (326), Minnesota (474), Ohio (488).

3/ One less herd than reported in letter to Extension Dairymen. This figure is correct.

SUMMARY OF THE 1961-62 DAIRY-HERD-IMPROVEMENT ASSOCIATION RECORDS, BY STATES 1/

State		Usable Complete & Incomplete Records	Herd Records tabulated	Cow-Years	Cow-Year Production			Average Feed Consumed			Average days on pasture
									Forage		
Code	Name				Milk	Test	Fat	Concentrates	Succulent	Dry	
		Number	Number	Number	Pounds	%	Pounds	Cwt	Cwt	Cwt	Number
11	Maine	577	566	20,597	10,806	4.0	434	39	59	49	150
12	New Hampshire	282	251	10,184	10,900	4.1	445	36	83	46	143
13	Vermont	835	805	33,947	10,222	4.0	413	33	62	44	156
14	Massachusetts	487	460	19,054	11,221	4.0	448	42	100	43	132
15	Rhode Island	50	46	2,234	10,984	3.9	424	42	134	37	112
16	Connecticut	448	397	18,398	11,456	3.9	452	44	122	32	136
21	New York	2,774	2,724	119,266	11,787	3.7	439	37	106	44	142
22	New Jersey	406	289	15,420	10,853	3.9	420	35	121	34	155
23	Pennsylvania	4,261	3,823	124,193	10,906	3.9	428	37	77	42	172
31	Ohio 3/	1,441	312	8,681	10,670	3.9	419	35	61	43	159
32	Indiana	805	801	26,235	10,899	3.9	430	34	85	38	155
33	Illinois	1,522	1,447	49,113	11,063	3.9	428	35	65	44	155
34	Michigan	1,824	1,674	55,098	11,116	3.8	420	35	73	50	134
35	Wisconsin 2/	2,621	-	-	-	-	-	-	-	-	-
41	Minnesota 3/	2,514	2,247	65,578	11,167	3.7	413	35	73	49	119
42	Iowa	1,519	1,462	45,482	10,601	3.8	405	37	79	44	135
43	Missouri	507	474	18,327	10,085	4.0	403	35	63	32	183
45	North Dakota	63	51	1,254	10,593	3.8	398	29	70	49	130
46	South Dakota	189	168	5,161	10,937	3.6	396	35	76	60	104
47	Nebraska	218	178	6,228	10,562	3.9	410	35	87	52	115
48	Kansas 3/	399	320	11,199	10,720	3.9	414	38	82	40	167
50	Delaware	96	94	3,745	10,140	3.9	392	34	93	27	198
51	Maryland	715	520	24,233	10,463	4.0	416	36	101	33	177
52	Virginia	1,068	1,006	53,300	10,583	3.9	411	36	102	30	191
54	West Virginia	226	217	8,191	9,503	3.9	368	31	73	34	176
55	North Carolina	493	484	23,180	9,999	3.8	382	36	137	20	183
56	South Carolina	175	170	11,818	8,906	4.0	355	34	94	20	274
57	Georgia	151	141	10,086	9,087	4.0	360	35	72	19	289
58	Florida	107	80	11,611	7,793	4.3	334	44	27	17	299
61	Kentucky	290	248	8,864	9,728	3.8	373	30	54	34	198
63	Tennessee	213	198	8,728	8,592	4.2	361	30	73	25	217
64	Alabama	217	196	15,121	7,980	4.0	321	36	43	18	296
65	Mississippi	95	90	5,195	7,309	4.3	312	28	46	12	317
71	Arkansas	49	49	2,112	8,979	3.8	337	34	46	38	216
72	Louisiana	18	17	1,120	7,642	4.0	306	36	35	22	317
73	Oklahoma	56	47	2,257	10,000	3.7	371	33	42	43	212
74	Texas	302	275	17,903	9,293	3.9	361	40	52	36	250
81	Montana	91	50	1,886	11,053	3.7	413	31	50	84	75
82	Idaho	546	434	14,214	10,649	4.0	425	24	49	78	96
83	Wyoming	28	1	53	12,183	3.7	452	35	110	90	-
84	Colorado 2/	245	-	-	-	-	-	-	-	-	-
85	New Mexico 2/	53	-	-	-	-	-	-	-	-	-
86	Arizona 2/	160	-	-	-	-	-	-	-	-	-
87	Utah 2/	405	-	-	-	-	-	-	-	-	-
88	Nevada 2/	41	-	-	-	-	-	-	-	-	-
91	Washington 2/	756	-	-	-	-	-	-	-	-	-
92	Oregon	424	18	863	9,408	4.5	419	29	50	38	218
93	California 2/	2,005	-	298,406	12,286	3.8	473	-	-	-	-
94	Puerto Rico	26	23	2,700	6,981	3.6	248	33	-	-	365
95	Hawaii 2/	1	-	-	-	-	-	-	-	-	-
Total or average			22,853	882,827	10,676	3.9	413	36	82	40	165
Including Incompletes		32,794 4/									

1/ Cow-year basis, based on complete individual herd reports only.
2/ Complete feed data not reported.
3/ Herds from the following States were omitted through error: Kansas (326), Minnesota (474), Ohio (488).
4/ One leas herd than reported in letter to Extension Dairymen. This figure is correct.

Growth Through Agricultural Progress

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA OWNER SAMPLER WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter
ARS-44-124
(Vol. 38, No. 10)

November 1962

18,882 SIRES SUMMARIZED IN DHIA IN 1962

During the period July-September 1962, 18,882 sires with daughters in DHIA herds were summarized. These sire summaries were forwarded to the State Extension Dairymen in October 1962. The numbers of bulls summarized by breed were as follows: Ayrshire, 801; Guernsey, 5,543; Holstein, 8,873; Jersey, 2,956; Brown Swiss, 519; Milking Shorthorn, 170; Red Dane, 12; Red Poll, 6; and mixed breed, 2.

The number of sires summarized by States is presented in Table 1. Sires with daughters in several States are included more than once in these counts, since each State receives a copy of the summary of each sire which had one or more daughters in that State.

In Tables 2-13 are presented stratifications of non-AI sires on the milk and butterfat levels of herdmates of the daughters. These stratifications provide information regarding the levels of herd production in which natural-service sires of the breed were used. As a means of determining whether these natural service sires were used in above or below average herds, one may compare the data in these tables to the following DHIA breed averages (milk production) for the period 1956-59; Ayrshire, 9,426; Guernsey, 8,367; Holstein, 12,095; Jersey, 7,868; Brown Swiss, 10,720; and Milking Shorthorn, 8,408. Using these averages as guides, there is evidence that these sires were used in herds slightly above the average condition for the breed.

The summary line in each table provides a means of determining the proportion of sires which increased daughters'

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production over the level of the herdmates. From these comparisons one can easily see that the proportion of plus-proved sires is considerably less than 50 per cent for all breeds. The difference in this proportion among breeds may in part be due to the inclusion of breed differences in the daughter-herdmate comparisons, thus handicapping sires of the high-fat test breeds. However, there is likely to be less mixing of breeds in natural-service DHIA herds than in DHIA herds using A. I. Effective with January 1, 1962, calving dates, herd-year-season averages will be compiled on a within-breed basis.

The relatively low proportion of sires increasing daughters' production over that of herdmates is indicative of a lack of success in selecting sires on the basis of pedigree information alone. Also, this may indicate that some selection may have been exerted for characteristics other than production.

Finally, the fact that the proportion of plus-summarized sires departs markedly from 50 per cent indicates that one should avoid thinking of this criterion as an absolute measure of breeding worth. The purpose of the daughter-herdmate comparison is to rank a group of bulls in order of their breeding value. Unfortunately, many tend to use a bull's comparison as an absolute measure of breeding value in relation to a base value of zero. None of the common sire selection criteria are intended for this type of application.

TABLE 1.--NUMBER OF SIRE RECORDS SUMMARIZED 08-62, BY STATE AND BREED *

STATE	AYRSHIRE	GUERNSEY	HOLSTEIN	JERSEY	BR. SWISS	SHORTHORN	RED DANE	OTHER	RED POLL	TOTAL
MAINE ----------	37	139	205	94	8	5				488
NEW HAMPSHIRE --	60	126	183	111	6	3				489
VERMONT --------	112	195	386	318	20	4	1			1,036
MASSACHUSETTS --	84	283	353	188	30	2				940
RHODE ISLAND ---	28	67	98	54	2					249
CONNECTICUT ----	92	358	356	116	26	2				950
NEW YORK -------	232	617	1,578	372	70	10		1		2,880
NEW JERSEY -----	11	335	327	89	30					792
PENNSYLVANIA ---	166	1,049	995	276	53	10				2,549
OHIO -----------	45	437	516	323	58	11			1	1,391
INDIANA --------	37	483	515	188	59	13	1			1,296
ILLINOIS -------	47	461	647	166	73	13			3	1,410
MICHIGAN -------	39	391	917	210	52	13	6			1,628
WISCONSIN ------	42	610	1,654	173	100	32	1		1	2,613
MINNESOTA ------	77	350	1,109	190	82	27				1,835
IOWA -----------	112	396	994	218	126	33	1		3	1,883
MISSOURI -------	1	223	287	153	24	7				695
NORTH DAKOTA ---	1	33	195	8	33	9				279
SOUTH DAKOTA ---	14	22	145	15	16					212
NEBRASKA -------	9	150	238	23	22	12				454
KANSAS ---------	75	151	432	76	47	22				803
DELAWARE -------	23	117	110	19	7					276
MARYLAND -------	78	442	623	96	47	6		1		1,293
VIRGINIA -------	53	515	716	117	23	6				1,430
WEST VIRGINIA --	20	100	191	45	5					361
NORTH CAROLINA -	39	386	421	167	29	1				1,043
SOUTH CAROLINA -	16	312	213	88	22					651
GEORGIA --------	30	139	217	114	26					526
FLORIDA --------	21	336	139	203	10		1			710
KENTUCKY -------	8	105	231	116	15					475
TENNESSEE ------	5	200	110	178	2	1				496
ALABAMA --------	20	121	169	184	13					507
MISSISSIPPI ----	13	161	60	133	7					374
ARKANSAS -------	2	78	75	53	2	3				213
LOUISIANA ------	3	155	59	34	1					252
OKLAHOMA -------	23	84	158	61	11	9				346
TEXAS ----------	27	168	278	242	32	1				748
MONTANA --------	2	32	67	16	12	2				131
IDAHO ----------	2	161	176	131	12	1				483
WYOMING --------		8	24		1					33
COLORADO -------	14	106	158	56	25	1				360
NEW MEXICO -----	1	132	28	35						196
ARIZONA --------	4	80	141	25	6					256
UTAH -----------		80	174	62	2					318
NEVADA ---------		37	8	25						70
WASHINGTON -----	30	267	308	188	16	6	1			816
OREGON ---------	13	242	196	259	18	5				733
CALIFORNIA -----	3	149	115	61	3					331
PUERTO RICO ----		1	13	1						15
HAWAII ---------			5							5
ALASKA ---------		1	3				1			5
TOTAL **	801	5,543	8,873	2,956	519	170	12	2	6	18,882

* The number listed for each State frequently includes 1 or more sires summarized with records from some other State as well as from the State indicated.

** The totals given here omit duplications of sires.

TABLE 2.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NDN-AI SIRES SUMMARIZED 08-62, GROUPED ACCORDING TO MILK PRODUCTION RANGE OF THE HERD MATES

AYRSHIRE

MILK PRODUCTION RANGE OF HERD MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERD MATES NUMBER	AVERAGE PRODUCTION					
					DAUGHTERS			HERD MATES		
					MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS	MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS
UNDER 6500---	1		1	7	5,366	4.2	225	6,272	4.2	261
6500 - 7499---	18	2	16	160	6,417	4.0	255	6,963	3.9	275
7500 - 8499---	64	27	37	645	8,042	4.1	328	8,166	4.0	329
8500 - 9499---	198	90	108	1,984	8,940	4.1	363	9,040	4.1	366
9500 -10499---	249	102	147	2,855	9,714	4.1	398	9,958	4.1	404
10500-11499---	130	37	93	1,410	10,285	4.1	423	10,862	4.1	440
11500-12499---	36	11	25	293	11,242	4.1	460	11,835	4.0	471
12500-13499---	3	1	2	32	13,218	4.1	546	12,889	4.1	527
13500-14499---	1		1	4	11,048	4.4	489	13,715	4.0	553
TOTAL OR AVERAGE-----	700	270	430	7,390	9,453	4.1	386	9,734	4.0	394

TABLE 3.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NDN-AI SIRES SUMMARIZED 08-62, GROUPED ACCORDING TO BUTTERFAT PRODUCTION RANGE OF THE HERD MATES

AYRSHIRE

BUTTERFAT PRODUCTION RANGE OF HERD MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERD MATES NUMBER	AVERAGE PRODUCTION					
					DAUGHTERS			HERD MATES		
					MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS	MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS
UNDER 275-----	11	1	10	98	6,155	3.9	239	6,789	3.9	262
275 - 299-----	10	4	6	107	6,828	4.0	276	7,308	4.0	289
300 - 324-----	25	13	12	192	7,882	4.0	317	8,131	3.9	315
325 - 349-----	66	32	34	673	8,395	4.0	337	8,508	4.0	339
350 - 374-----	120	57	63	1,227	8,925	4.0	360	9,018	4.0	363
375 - 399-----	148	58	90	1,501	9,385	4.1	383	9,579	4.1	388
400 - 424-----	142	58	84	1,656	9,804	4.1	402	10,175	4.1	412
425 - 449-----	99	35	64	1,134	10,199	4.1	422	10,622	4.1	435
450 - 474-----	58	23	35	610	10,647	4.2	442	11,237	4.1	458
475 - 499-----	13	7	6	130	11,474	4.2	481	11,707	4.1	483
500 - 524-----	5	4	1	37	13,153	4.2	549	12,418	4.1	511
525 - 549-----	1		1	6	11,770	4.4	517	12,223	4.4	543
550 - 574-----	2		2	19	11,815	4.2	502	13,510	4.1	552
TOTAL OR AVERAGE-----	700	292	408	7,390	9,453	4.1	386	9,734	4.0	394

TABLE 4.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NDN-AI SIRES SUMMARIZED 08-62, GROUPED ACCORDING TO MILK PRODUCTION RANGE OF THE HERD MATES

GUERNSEY

MILK PRODUCTION RANGE OF HERD MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERD MATES NUMBER	AVERAGE PRODUCTION					
					DAUGHTERS			HERD MATES		
					MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS	MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS
UNDER 6500---	49	21	28	452	5,914	4.8	281	6,022	4.7	285
6500 - 7499---	377	153	224	4,455	6,945	4.8	333	7,146	4.7	339
7500 - 8499---	1,382	493	889	15,416	7,801	4.8	378	8,067	4.8	385
8500 - 9499---	1,836	674	1,162	22,865	8,712	4.9	423	8,983	4.8	429
9500 -10499---	800	264	536	10,378	9,466	4.9	461	9,890	4.8	471
10500-11499---	149	45	104	1,599	10,225	4.9	500	10,824	4.7	513
11500-12499---	29	3	26	244	9,770	4.9	483	11,756	4.5	531
12500-13499---	5		5	29	8,841	4.5	399	12,826	3.9	495
13500-14499---	3		3	11	11,117	4.7	524	13,660	4.1	557
TOTAL OR AVERAGE-----	4,630	1,653	2,977	55,449	8,454	4.9	410	8,769	4.8	418

TABLE 5.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI SIRES SUMMARIZED 08-62, GROUPED ACCORDING TO BUTTERFAT PRODUCTION RANGE OF THE HERD MATES

GUERNSEY

BUTTERFAT PRODUCTION RANGE OF HERD MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERD MATES NUMBER	AVERAGE PRODUCTION					
					DAUGHTERS			HERD MATES		
					MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS	MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS
UNDER 275-----	14	7	7	137	5,576	4.5	254	5,779	4.5	259
275 - 299-----	42	18	24	832	6,157	4.6	286	6,372	4.5	289
300 - 324-----	89	38	51	1,006	6,618	4.6	307	7,001	4.5	315
325 - 349-----	233	93	140	2,494	7,022	4.7	331	7,299	4.6	339
350 - 374-----	489	190	299	5,353	7,399	4.8	353	7,799	4.7	363
375 - 399-----	804	328	476	8,985	7,925	4.8	380	8,239	4.7	388
400 - 424-----	881	389	492	10,338	8,380	4.8	406	8,678	4.7	412
425 - 449-----	923	409	514	11,442	8,843	4.9	430	9,123	4.8	436
450 - 474-----	608	263	345	7,738	9,219	4.9	453	9,560	4.8	461
475 - 499-----	293	152	141	4,171	9,685	5.0	481	9,934	4.9	485
500 - 524-----	152	54	98	1,822	9,987	5.0	498	10,400	4.9	510
525 - 549-----	70	29	41	806	10,363	5.0	521	10,762	5.0	535
550 - 574-----	18	6	12	239	11,200	5.0	564	11,189	5.0	562
575 - 599-----	6	2	4	34	11,292	5.0	568	11,577	5.0	583
600 - 624-----	5	2	3	29	10,626	5.1	544	11,607	5.2	608
625 - 649-----	2		2	15	11,768	5.1	599	12,041	5.2	626
OVER 649-----	1		1	8	13,011	4.9	640	13,517	4.9	664
TOTAL OR AVERAGE-----	4,630	1,980	2,650	55,449	8,454	4.9	410	8,769	4.8	418

TABLE 6.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI SIRES SUMMARIZED 08-62, GROUPED ACCORDING TO MILK PRODUCTION RANGE OF THE HERD MATES

HOLSTEIN

MILK PRODUCTION RANGE OF HERD MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERD MATES NUMBER	AVERAGE PRODUCTION					
					DAUGHTERS			HERD MATES		
					MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS	MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS
6500 - 7499---	5	4	1	28	8,297	3.5	292	6,899	4.0	275
7500 - 8499---	38	21	17	466	8,663	3.7	323	8,061	4.0	319
8500 - 9499---	128	64	64	1,168	9,402	3.7	344	9,106	3.8	344
9500 -10499---	406	163	243	4,406	9,938	3.6	361	10,108	3.7	371
10500-11499---	1,136	538	598	11,897	11,032	3.6	402	11,058	3.7	405
11500-12499---	2,034	910	1,124	25,298	11,908	3.7	435	12,034	3.6	439
12500-13499---	2,091	946	1,145	26,443	12,861	3.7	470	12,978	3.7	474
13500-14499---	1,238	558	680	15,686	13,777	3.7	504	13,933	3.6	507
14500-15499---	407	163	244	4,647	14,566	3.7	533	14,893	3.6	543
15500-16499---	115	49	66	1,107	15,620	3.6	568	15,840	3.6	575
OVER 16500---	34	15	19	351	16,387	3.6	588	17,012	3.6	614
TOTAL OR AVERAGE-----	7,632	3,431	4,201	91,497	12,394	3.7	452	12,513	3.7	457

TABLE 7.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI SIRES SUMMARIZED 08-62, GROUPED ACCORDING TO BUTTERFAT PRODUCTION RANGE OF THE HERD MATES

HOLSTEIN

BUTTERFAT PRODUCTION RANGE OF HERD MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERD MATES NUMBER	AVERAGE PRODUCTION DAUGHTERS MILK POUNDS	DAUGHTERS BUTTERFAT %	DAUGHTERS BUTTERFAT POUNDS	HERD MATES MILK POUNDS	HERD MATES BUTTERFAT %	HERD MATES BUTTERFAT POUNDS
UNDER 275-----	3	1	2	16	7,475	3.5	263	6,993	3.5	247
275 - 299-----	14	7	7	105	7,991	3.6	284	7,964	3.7	291
300 - 324-----	47	19	28	569	8,693	3.6	314	8,645	3.6	315
325 - 349-----	125	43	82	1,479	9,309	3.5	329	9,521	3.6	339
350 - 374-----	268	118	150	2,783	10,034	3.6	359	10,117	3.6	364
375 - 399-----	581	244	337	5,876	10,632	3.6	383	10,764	3.6	388
400 - 424-----	963	456	507	10,546	11,397	3.6	411	11,431	3.6	413
425 - 449-----	1,354	626	728	17,085	11,931	3.6	433	12,060	3.6	438
450 - 474-----	1,479	688	791	18,757	12,537	3.7	458	12,654	3.7	462
475 - 499-----	1,263	607	656	15,598	13,189	3.7	483	13,274	3.7	487
500 - 524-----	801	362	439	9,780	13,728	3.7	507	13,852	3.7	511
525 - 549-----	406	176	230	5,483	14,190	3.7	526	14,437	3.7	535
550 - 574-----	200	86	114	2,053	14,695	3.7	549	14,977	3.7	561
575 - 599-----	80	38	42	921	15,437	3.7	578	15,657	3.7	587
600 - 624-----	33	18	15	335	15,954	3.8	605	16,201	3.8	612
625 - 649-----	8	4	4	57	15,808	3.9	613	16,100	4.0	636
OVER 649-----	7		7	54	14,916	3.9	577	16,979	4.0	675
TOTAL OR AVERAGE-----	7,632	3,493	4,139	91,497	12,394	3.7	452	12,513	3.7	457

TABLE 8.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI SIRES SUMMARIZED 08-62, GROUPED ACCORDING TO MILK PRODUCTION RANGE OF THE HERD MATES

JERSEY

MILK PRODUCTION RANGE OF HERD MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERD MATES NUMBER	AVERAGE PRODUCTION DAUGHTERS MILK POUNDS	DAUGHTERS BUTTERFAT %	DAUGHTERS BUTTERFAT POUNDS	HERD MATES MILK POUNDS	HERD MATES BUTTERFAT %	HERD MATES BUTTERFAT POUNDS
UNDER 6500---	96	39	57	933	6,030	5.1	308	6,186	5.1	316
6500 - 7499---	513	158	355	5,511	6,806	5.2	355	7,109	5.1	365
7500 - 8499---	973	338	635	11,103	7,718	5.2	404	8,007	5.1	412
8500 - 9499---	635	209	426	7,654	8,482	5.3	446	8,915	5.1	456
9500 -10499---	165	50	115	1,970	9,099	5.2	478	9,869	5.0	492
10500-11499---	33	5	28	341	9,752	5.2	505	10,916	4.7	512
11500-12499---	10	1	9	91	9,524	5.2	493	11,843	4.6	543
12500-13499---	3		3	29	7,447	5.4	402	12,987	3.9	511
13500-14499---	1		1	2	8,415	5.9	493	13,640	3.9	529
TOTAL OR AVERAGE-----	2,428	799	1,629	27,626	7,785	5.2	408	8,172	5.1	417

TABLE 9.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI SIRES SUMMARIZED 08-62, GROUPED ACCORDING TO BUTTERFAT PRODUCTION RANGE OF THE HERD MATES

JERSEY

BUTTERFAT PRODUCTION RANGE OF HERD MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERD MATES NUMBER	AVERAGE PRODUCTION DAUGHTERS MILK POUNDS	DAUGHTERS BUTTERFAT %	DAUGHTERS BUTTERFAT POUNDS	HERD MATES MILK POUNDS	HERD MATES BUTTERFAT %	HERD MATES BUTTERFAT POUNDS
UNDER 275-----	8	2	6	66	5,231	4.9	256	5,644	4.6	260
275 - 299-----	23	11	12	194	5,881	4.9	286	5,968	4.8	288
300 - 324-----	55	21	34	554	6,208	4.9	306	6,491	4.9	315
325 - 349-----	158	62	96	1,700	6,499	5.1	330	6,956	4.9	340
350 - 374-----	263	102	161	3,029	6,904	5.1	353	7,317	5.0	363
375 - 399-----	405	152	253	4,294	7,247	5.2	376	7,649	5.1	387
400 - 424-----	447	179	268	4,893	7,702	5.2	402	8,096	5.1	412
425 - 449-----	443	185	258	5,258	8,065	5.3	426	8,517	5.1	437
450 - 474-----	310	142	168	3,583	8,557	5.3	455	8,836	5.2	461
475 - 499-----	157	70	87	1,949	8,910	5.3	474	9,289	5.2	485
500 - 524-----	88	39	49	1,119	9,394	5.4	504	9,747	5.3	512
525 - 549-----	44	23	21	691	9,658	5.5	529	10,048	5.3	534
550 - 574-----	17	8	9	188	10,344	5.4	562	10,472	5.3	560
575 - 599-----	5	3	2	58	11,207	5.5	614	10,743	5.5	588
600 - 624-----	2	1	1	10	11,407	5.2	597	11,556	5.2	602
625 - 649-----	2		2	32	9,924	5.3	522	11,930	5.4	639
OVER 649-----	1	1		8	12,914	5.8	745	11,256	5.8	658
TOTAL OR AVERAGE-----	2,428	1,001	1,427	27,626	7,785	5.2	408	8,172	5.1	417

TABLE 10.-AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI SIRES SUMMARIZED 08-62, GROUPED ACCORDING TO MILK PRODUCTION RANGE OF THE HERD MATES

BROWN SWISS

MILK PRODUCTION RANGE OF HERD MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERD MATES NUMBER	AVERAGE PRODUCTION					
					DAUGHTERS			HERD MATES		
					MILK POUNDS	BUTTERFAT %	POUNDS	MILK POUNDS	BUTTERFAT %	POUNDS
7500 - 8499---	10	4	6	109	7,809	4.1	318	8,184	4.1	333
8500 - 9499---	38	12	26	354	8,773	4.0	352	9,070	4.0	367
9500 -10499---	94	42	52	912	9,934	4.1	409	10,029	4.1	408
10500-11499---	126	53	73	1,142	10,760	4.1	443	10,997	4.1	447
11500-12499---	88	41	47	898	11,814	4.1	484	11,983	4.1	487
12500-13499---	17	7	10	128	12,417	4.2	516	12,770	4.1	523
13500-14499---	2	1	1	20	14,029	4.0	558	13,821	4.0	547
TOTAL OR AVERAGE-----	375	160	215	3,563	10,613	4.1	435	10,811	4.1	439

TABLE 11.-AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI SIRES SUMMARIZED 08-62, GROUPED ACCORDING TO BUTTERFAT PRODUCTION RANGE OF THE HERD MATES

BROWN SWISS

BUTTERFAT PRODUCTION RANGE OF HERD MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERD MATES NUMBER	AVERAGE PRODUCTION					
					DAUGHTERS			HERD MATES		
					MILK POUNDS	BUTTERFAT %	POUNDS	MILK POUNDS	BUTTERFAT %	POUNDS
300 - 324-----	4	1	3	51	7,528	3.8	289	8,319	3.8	319
325 - 349-----	13	5	8	120	8,033	4.0	324	8,623	3.9	339
350 - 374-----	23	12	11	190	9,038	4.0	359	9,057	4.0	363
375 - 399-----	31	14	17	330	9,308	4.0	377	9,758	4.0	388
400 - 424-----	70	28	42	656	10,037	4.1	412	10,116	4.1	412
425 - 449-----	78	36	42	738	10,651	4.1	432	10,831	4.0	438
450 - 474-----	61	31	30	552	11,102	4.1	459	11,348	4.1	462
475 - 499-----	47	25	22	499	11,660	4.1	481	11,841	4.1	485
500 - 524-----	37	20	17	324	12,277	4.2	518	12,282	4.1	509
525 - 549-----	8	2	6	82	11,884	4.2	502	12,753	4.2	537
550 - 574-----	3	1	2	21	13,634	4.1	562	13,252	4.2	557
TOTAL OR AVERAGE-----	375	175	200	3,563	10,613	4.1	435	10,811	4.1	439

TABLE 12.-AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI SIRES SUMMARIZED 08-62, GROUPED ACCORDING TO MILK PRODUCTION RANGE OF THE HERD MATES

SHORTHORN

MILK PRODUCTION RANGE OF HERD MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERD MATES NUMBER	AVERAGE PRODUCTION					
					DAUGHTERS			HERD MATES		
					MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS	MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS
UNDER 6500---	2	1	1	16	6,591	3.9	256	6,123	4.0	242
6500 - 7499---	16	10	6	104	7,860	3.8	302	7,133	3.9	278
7500 - 8499---	42	21	21	428	8,015	3.9	312	8,031	3.9	311
8500 - 9499---	44	20	24	376	8,806	3.8	336	8,929	3.8	340
9500 -10499---	14	5	9	118	9,606	3.9	373	9,957	3.8	383
10500-11499---	2		2	15	9,258	3.6	333	10,805	3.6	386
12500-13499---	1		1	6	7,428	3.4	254	13,471	3.7	493
TOTAL OR AVERAGE-----	121	57	64	1,063	8,458	3.8	325	8,521	3.8	327

TABLE 13.-AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI SIRES SUMMARIZED 08-62, GROUPED ACCORDING TO BUTTERFAT PRODUCTION RANGE OF THE HERD MATES

SHORTHORN

BUTTERFAT PRODUCTION RANGE OF HERD MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERD MATES NUMBER	AVERAGE PRODUCTION					
					DAUGHTERS			HERD MATES		
					MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS	MILK POUNDS	BUTTERFAT %	BUTTERFAT POUNDS
UNDER 275-----	9	5	4	51	7,524	3.8	287	6,768	3.8	260
275 - 299-----	16	8	8	149	7,840	3.8	299	7,563	3.8	287
300 - 324-----	37	16	21	386	8,055	3.9	312	8,154	3.8	312
325 - 349-----	28	14	14	226	8,649	3.9	334	8,726	3.8	335
350 - 374-----	16	4	12	133	9,203	3.8	350	9,408	3.9	362
375 - 399-----	13	6	7	96	9,577	3.9	369	9,898	3.9	383
425 - 449-----	1	1		16	10,960	4.3	473	10,385	4.3	448
475 - 499-----	1		1	6	7,428	3.4	254	13,471	3.7	493
TOTAL OR AVERAGE-----	121	54	67	1,063	8,458	3.8	325	8,521	3.8	327

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AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter ARS-44-125
(Vol. 38, No. 11)

December 1962

2,216 A. I. SIRES SUMMARIZED IN 1962

Lactation records received by the Branch resulted in the selection of 2,216 artificial insemination sires for summarization in 1962. Table 1 presents the number of sires of the various breeds, as well as the average production of daughters, average production of daughters' herdmates, and average Predicted Average rating of sires. These totals include only those A. I. sires which had A. I. daughters with herdmate data. The totals include sires summarized for the first time in DHIA, as well as sires which were resummarized. Sires are summarized when five or more DHIA daughters are available, and are resummarized when 50 percent or more additional daughters are available.

The results of screening registered daughters of A. I. sires on the basis of their milk production superiority over herdmates are presented in Table 2. Daughters of 2,657 A. I. sires were screened in this process. The sires involved in this table included those which lacked A. I. daughters with herdmate data, in contrast to the total in Table 1.

Daughters meeting screening standards were listed on the sire summary records (DHIA-1202) of their sires. The information for each daughter included herd identification of the last lactation present, birthdate, sire, dam, number of records, and average milk and fat production of the cow and her herdmates.

The requirements for listing daughters of A. I. sires were (1) only registered daughters were eligible (2) only daughters with at least one record with herdmate data were considered

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(3) the daughters' milk production superiority over her herdmates, weighted for number of lactations, must have exceeded a specified amount. The factors used to weight the number of records were as follows:

Number of records	Factor
1	1.00
2	1.38
3	1.58
4	1.70
5 or more	1.78

The minimum requirements for daughter superiority over herdmates' milk production for listing were as follows:

Breed	Standard (lb.)
Ayrshire	2,490
Guernsey	2,250
Holstein	3,100
Jersey	2,350
Brown Swiss	2,990
Milking Shorthorn	2,480
Red Dane	2,000
Red Poll	1,875

The proportion of daughters listed in Table 2 indicates a minimum value, since a portion of the registered daughters lacked records with herdmate data. The data in this table indicate that a higher proportion of daughters were listed than was expected.

The purpose of these listings is to identify cows of high genetic merit for production. Planned matings to produce future sire prospects are increasing in frequency, and these listings provide a source of information for locating cows to be used in such matings. Only milk production of the individual is considered in the screening process. Much attention also should be paid to the proof of the cow's sire. Daughters listed whose sires have outstanding A. I. proofs are reliable sources of future sire prospects.

ERRATUM:

October 1962 Letter. No entries should appear for California in the table on page 3 since this table referred only to herds with feed data. The totals in this table do not include California herds.

Table 1. Summary of Records of Sires in Artificial Insemination Service by Breed

Breed	AI Sires	Average Production							
		Daughters			Herdmates			Predicted Average	
		Milk	Butterfat		Milk	Butterfat		Milk	Butterfat
	Number	Pounds	%	Pounds	Pounds	%	Pounds	Pounds	Pounds
Ayrshire------	74	9,508	4.1	393	9,951	4.1	404	9,249	384
Guernsey------	658	8,490	4.8	409	8,933	4.7	416	8,097	397
Holstein------	976	12,638	3.7	464	12,620	3.7	464	12,176	445
Jersey--------	377	8,013	5.2	416	8,447	5.0	422	7,636	408
Brown Swiss---	107	10,649	4.1	437	10,804	4.0	434	10,595	440
Shorthorn-----	22	9,359	3.8	356	9,071	3.9	352	8,485	325
Red Dane------	1	12,623	4.1	513	11,027	4.1	447	9,649	385
Red Poll------	1	10,920	3.8	411	8,919	4.1	364	8,837	349
Total or Average-----	2,216	10,386	4.2	435	10,601	4.1	438		

Table 2. Daughters of AI Sires Included in Tabulations by Breed

Breed	Sire	Daughters	Registered Daughters	Daughters Listed
	Number	Number	Number	Number
Ayrshire----	95	8,459	7,671	667
Guernsey----	814	52,451	38,077	3,645
Holstein----	1134	197,288	108,592	13,932
Jersey------	450	30,804	21,412	1,881
Brown Swiss-	128	5,744	4,518	446
Shorthorn---	34	385	352	46
Red Dane----	1	5		
Red Poll----	1	10	10	5
Total-------	2657	295,146	180,632	20,622

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ARS-44-126
Dairy-Herd-Improvement Letter
(Vol. 39, No. 1)

January 1963

1962 AGAIN SHOWS INCREASE IN NUMBER OF LACTATION RECORDS REPORTED

During 1962, 1,211,407 lactation records were reported to the Dairy Cattle Research Branch, Animal Husbandry Research Division for use in compiling DHIA sire records.

The number of lactation records reported each year, since 1946 is shown below:

Year	Lactation records reported (Number)	Year	Lactation records reported (Number)
1946	183,884	1954	667,074
1947	250,811	1955	636,293
1948	285,083	1956	658,086
1949	391,067	1957	565,360
1950	471,721	1958	786,496
1951	540,953	1959	927,998
1952	485,949	1960	886,495
1953	501,582	1961	1,084,799
		1962	1,211,407

The 1,211,407 records reported during 1962 represents approximately 62 percent of the 1,958,355 cows on Standard DHIA test at the beginning of the year.

On the following page is a table showing the number of records reported by States.

Issued February 1963

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PRODUCTION RECORDS REPORTED TO THE DAIRY CATTLE RESEARCH BRANCH BY STATE EXTENSION SERVICES, FOR THE PERMANENT FILES DURING 1961 AND 1962

State	1962							1961	
	Cows on test in all association herds on January 1	Standard DHIA records reported 1/ 2/	Herd test records reported by --		Total records reported 1/		Records returned 3/	Total records reported 2/	
			American Guernsey Cattle Club	American Jersey Cattle Club					
	Number	Number	Number	Number	Number	Percent	Number	Number	Percent
Maine	22,266	19,240	24	14	19,278	86.6	122	19,178	86.9
N. H.	13,078	11,840	62	21	11,923	91.2	101	10,006	81.7
Vt.	48,743	35,198	62	413	35,673	73.2	461	25,431	53.2
Mass.	22,504	24,620	180	278	25,078	111.4	45	20,056	88.0
R. I.	2,585	2,059	29	131	2,219	85.8	6	2,296	84.8
Conn.	24,702	22,110	426	---	22,536	91.2	203	17,069	69.0
N. Y.	163,749	176,141	425	411	176,977	108.1	4	143,262	91.1
Pa.	163,530	117,789	956	131	118,876	72.7	449	135,246	86.6
N. J.	30,280	16,553	881	251	17,685	58.4	354	15,303	54.2
Md.	46,985	30,192	239	230	30,661	65.3	72	28,424	61.2
Del.	3,477	4,775	126	---	4,901	141.0	1	3,819	99.7
Va.	61,194	37,522	255	101	37,878	61.9	214	48,405	80.7
W. Va.	6,542	5,815	10	20	5,845	89.3	47	6,032	65.8
Ky.	21,187	12,894	55	232	13,181	62.2	174	6,061	35.0
N. C.	37,652	31,733	407	188	32,328	85.9	62	26,348	75.5
S. C.	16,606	13,785	360	---	14,145	85.2	3	10,942	79.0
Ga.	25,942	12,129	143	153	12,425	47.9	55	8,979	40.0
Fla.	21,252	8,020	294	8	8,322	39.2	83	4,810	22.5
Ala.	21,088	13,867	7	15	13,889	65.9	15	11,707	58.3
Miss.	9,917	3,440	176	98	3,714	37.5	59	3,253	37.5
Tenn.	22,874	6,459	470	346	7,275	31.8	44	5,558	28.7
La.	4,455	1,403	330	127	1,860	41.8	15	1,177	26.4
Ark.	3,713	3,310	135	98	3,543	95.4	---	2,041	71.7
Ohio	75,826	39,632	2,025	1,205	42,862	56.5	594	45,260	67.9
Ind.	36,301	33,364	231	227	33,822	93.2	6	22,285	56.8
Ill.	60,486	40,430	439	286	41,155	68.0	201	50,808	87.5
Mich.	73,118	76,563	229	345	77,137	105.5	---	60,801	91.5
Wis.	109,286	90,888	109	77	91,074	83.3	---	121,765	121.4
Minn.	124,831	76,643	149	89	76,881	61.6	1,258	67,147	58.9
Iowa	57,755	61,026	24	106	61,156	105.9	121	33,904	59.3
Mo.	26,938	10,582	289	148	11,019	40.9	243	9,652	37.2
N. Dak.	5,899	6,658	---	---	6,658	112.9	91	3,974	67.1
S. Dak.	7,238	2,851	---	---	2,851	39.4	10	1,905	29.3
Nebr.	12,700	9,644	265	38	9,947	78.3	61	5,072	42.2
Kans.	31,759	25,316	129	57	25,502	80.3	226	14,655	50.5
Okla.	8,777	6,679	73	183	6,935	79.0	62	2,228	28.1
Tex.	28,513	15,222	226	763	16,211	56.9	51	11,926	48.0
Mont.	4,093	1,811	77	---	1,888	46.1	1	1,776	31.2
Idaho	27,100	6,835	163	48	7,046	26.0	176	8,203	31.3
Wyo.	1,342	460	18	---	478	35.6	---	397	20.5
Nev.	3,812	1,185	---	13	1,198	31.4	---	291	8.4
Utah	17,739	17,881	---	---	17,881	100.1	---	10,942	62.7
Colo.	16,938	5,366	30	12	5,408	31.9	---	2,413	13.8
N. Mex.	4,848	1,164	133	119	1,416	29.2	4	932	18.7
Ariz.	21,210	4,663	74	19	4,756	22.4	6	3,213	15.3
Wash.	45,113	20,356	839	238	21,433	47.5	460	23,297	48.3
Oreg.	27,500	17,512	495	510	18,517	67.3	294	19,470	65.6
Calif.	329,517	5,609	1,035	437	7,081	2.1	162	6,838	2.2
P. R.	4,970	780	---	---	780	15.7	---	38	.8
Hawaii	85	45	---	---	45	52.9	---	80	58.0
Alaska	340	56	---	2	58	17.1	---	124	---
U. S.	1,958,355	1,190,115	13,104	8,188	1,211,407	61.9	6,616	1,084,799	58.1

1/ Includes cows enrolled since January 1, 1962.
2/ Production records reported on DHIA-718 and DHIA-1095.
3/ Records returned to States because of inconsistent or incomplete data.

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AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter
ARS-44-128
(Vol. 39, No. 2)

February 1963

ANOTHER ALL-TIME PEAK IN DAIRY RECORDKEEPING

On January 1, 1963, more cows than ever before were enrolled in the three recordkeeping plans, DHIA, OS, and WADAM, which collectively make up the National Cooperative Dairy Herd Improvement Program. On January 1, 1963, the Program included 2,783,504 cows from 68,813 herds. The number of cows in DHIA represents 16.3 percent of the milk cows of the nation.

A summary of the status of the Standard DHIA and DHIR plans is found on page 4. There were 2,006,534 cows enrolled in the Standard Recordkeeping Plan as of January 1, 1963. This represents an increase of 2.5% more cows as compared to January 1, 1962. In the same period the total number of milk cows in the U. S. dropped from 17,328,000 to 17,086,000, a decrease of 1.8%. At the same time the number of herds on test decreased (41,937 as compared to 42,034 on January 1, 1962), resulting in an increase from 46.6 cows on test per herd to 47.8.

Statistics on the status of the Owner-Sampler Recordkeeping Plan are given on page 6. On January 1, 1963, there were 726,478 cows enrolled in the Owner-Sampler Plan. This represents an addition of 28,176 cows or an increase of 4.0 percent as compared to January 1, 1962. The number of herds on Owner-Sampler testing increased from 24,954 in 1962 to 25,376.

Enrollment in the WADAM Recordkeeping Plan again decreased as shown on page 7. As of January 1, 1963, there were 68,813 cows from 1,500 herds on WADAM testing. The comparable totals for January 1, 1962 were 70,617 cows and

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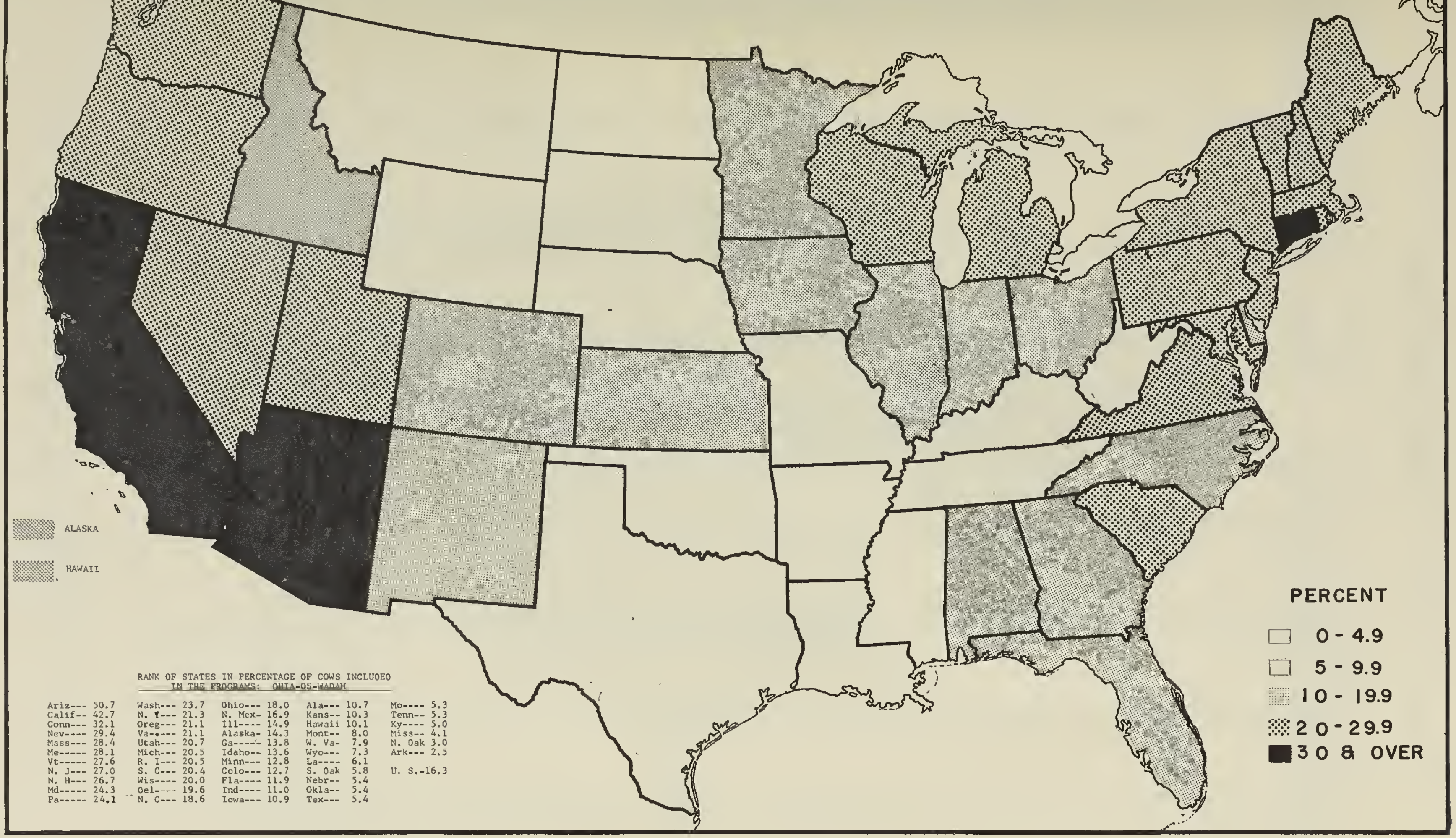
1,936 herds. Therefore 2.6 percent fewer cows were enrolled in WADAM on January 1, 1963, as compared to the number one year earlier.

On page 8 a tabulation by States for herds and cows enrolled in each Plan is presented. The final column shows the density of testing for each State. A listing of counties which had 20% or more of the total cow population on test is given on pages 9, 10 and 11.

The status of Central Processing on January 1, 1963, is presented on page 12. Of the total of 41,937 herds on Standard DHIA, 27,824, or 66.3%, were on the electronic computing system. This represents a gain of 3,413 herds as compared to data for January 1, 1962.

A map showing the density of DHIA testing is given on page 3. The top five ranking States were Arizona, California, Connecticut, Nevada and Massachusetts.

NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM
PERCENTAGE OF COWS IN PROGRAM JANUARY 1, 1963



RANK OF STATES IN PERCENTAGE OF COWS INCLUDED IN THE PROGRAMS: DHIA-OS-WADAM

Ariz	50.7	Wash	23.7	Ohio	18.0	Ala	10.7	Mo	5.3
Calif	42.7	N. Y	21.3	N. Mex	16.9	Kans	10.3	Tenn	5.3
Conn	32.1	Oreg	21.1	Ill	14.9	Hawaii	10.1	Ky	5.0
Nev	29.4	Va	21.1	Alaska	14.3	Mont	8.0	Miss	4.1
Mass	28.4	Utah	20.7	Ga	13.8	W. Va	7.9	N. Dak	3.0
Me	28.1	Mich	20.5	Idaho	13.6	Wyo	7.3	Ark	2.5
Vt	27.6	R. I	20.5	Minn	12.8	La	6.1		
N. J	27.0	S. C	20.4	Colo	12.7	S. Dak	5.8	U. S.	16.3
N. H	26.7	Wis	20.0	Fla	11.9	Nebr	5.4		
Md	24.3	Del	19.6	Ind	11.0	Okla	5.4		
Pa	24.1	N. C	18.6	Iowa	10.9	Tex	5.4		

DAIRY HERD IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES
(Active January 1, 1963)

State	Associations	Supervisors	Herds	Cows	Average cows per herd	Average per supervisor		Milk cows in United States 1/	
						Herds	Cows	Total	in DHIA's
	Number	Number	Number	Number	Number	Number	Number	Thousands	Percent
Me----------	15	34	573	21,610	37.7	16.9	636	93	23.2
N. H--------	9	19	368	11,101	30.2	19.4	584	51	21.8
Vt----------	35	75	1,073	49,689	46.3	14.3	663	258	19.3
Mass--------	12	27	539	23,134	42.9	20.0	857	92	25.1
R. I--------	2	2	48	2,449	51.0	24.0	1,225	13	18.8
Conn--------	8	29	484	23,396	48.3	16.7	807	82	28.5
N. Y--------	49	214	3,877	170,000	43.8	18.1	794	1,253	13.6
Pa----------	59	210	4,936	172,447	34.9	23.5	821	872	19.8
N. J--------	10	26	547	29,474	53.9	21.0	1,134	125	23.6
Md----------	18	42	905	48,234	53.3	21.5	1,148	215	22.4
Del---------	3	5	107	4,372	40.9	21.4	874	25	17.5
Va----------	66	62	1,156	65,335	56.5	18.6	1,054	324	20.2
W. Va-------	13	17	158	7,210	45.6	9.3	424	119	6.1
Ky----------	47	49	535	21,000	39.3	10.9	429	493	4.3
N. C--------	53	56	820	42,845	52.2	14.6	765	256	16.7
S. C--------	16	23	244	19,553	80.1	10.6	850	104	18.8
Ga----------	29	33	378	25,460	67.4	11.5	772	203	12.5
Fla---------	9	12	116	19,207	165.6	9.7	1,601	180	10.7
Ala---------	22	21	272	21,916	80.6	13.0	1,044	229	9.6
Miss--------	13	17	177	10,266	58.0	10.4	604	329	3.1
Tenn--------	38	35	484	24,369	50.3	13.8	696	493	4.9
La----------	15	16	65	5,214	80.2	4.1	326	227	2.3
Ark---------	11	12	79	3,583	45.4	6.6	299	208	1.7
Ohio--------	82	145	2,317	80,446	34.7	16.0	555	654	12.3
Ind---------	57	80	1,110	38,210	34.4	13.9	478	410	9.3
Ill---------	64	94	1,672	62,428	37.3	17.8	664	539	11.6
Mich--------	84	130	2,086	78,800	37.8	16.0	606	637	12.4
Wis---------	61	154	2,912	114,405	39.3	18.9	743	2,138	5.4
Minn--------	89	211	4,040	125,156	31.0	19.1	593	1,275	9.8
Iowa--------	72	113	1,862	57,973	31.1	16.5	513	832	7.0
Mo----------	44	45	634	27,228	42.9	14.1	605	641	4.2
N. Dak------	13	12	178	6,014	33.8	14.8	501	268	2.2
S. Dak------	16	14	206	7,754	37.6	14.7	554	238	3.3
Nebr--------	29	31	330	13,750	41.7	10.6	444	300	4.6
Kans--------	51	57	776	29,175	37.6	13.6	512	316	9.2
Okla--------	17	19	182	9,255	50.9	9.6	487	229	4.0
Tex---------	30	31	390	27,995	71.8	12.6	903	544	5.1
Mont--------	8	9	88	4,055	46.1	9.8	451	73	5.6
Idaho-------	38	40	727	26,180	36.0	18.2	655	197	13.3
Wyo---------	5	5	34	1,218	35.8	6.8	244	28	4.4
Nev---------	5	4	52	4,042	77.7	13.0	1,011	15	26.9
Utah--------	18	18	441	18,447	41.8	24.5	1,025	93	19.8
Colo--------	15	23	206	11,976	58.1	9.0	521	116	10.3
N. Mex------	6	6	44	4,383	99.6	7.3	731	38	11.5
Ariz--------	5	13	140	20,860	149.0	10.8	1,605	49	42.6
Wash--------	24	51	904	49,534	54.8	17.7	971	237	20.9
Oreg--------	18	30	500	28,100	56.2	16.7	937	153	18.4
Calif-------	34	135	2,103	330,389	157.1	15.6	2,447	805	41.0
Hawaii------	1	2	11	1,240	112.7	5.5	620	14	8.9
Alaska------	2	2	10	430	43.0	5.0	215	3	14.3
P. R--------	1	6	41	5,227	127.5	6.8	871	-	-
Total or average---	1,441	2,516	41,937	2,006,534	47.8	16.7	798	17,086	11.7

1/ Estimated by the Statistical Reporting Service; number of milk cows on farms during year excluding heifers not yet fresh.

GROWTH OF DAIRY-HERD-IMPROVEMENT ASSOCIATION WORK IN THE UNITED STATES
(1906-1963, inclusive)

Year	Association	Supervisors	Herds on test	Cows on test	Average cows per herd	Average production of cows on test		
						Milk	Test	Butterfat
	Number	Number	Number	Number	Number	Pounds	Percent	Pounds
1906---	1	----	31	239	7.7	5,300	4.1	215
1907---	4	----	----	1,606	---	5,366	4.1	220
1908---	6	----	----	3,921	---	-----	---	---
1909---	25	----	----	11,921	---	-----	---	---
1910---	40	----	----	1/ 25,000	---	1/ 5,730	4.0	1/ 227
1911---	64	----	----	1/ 40,000	---	-----	---	---
1912---	82	----	----	1/ 43,000	---	-----	---	---
1913---	100	----	----	47,150	---	-----	---	---
1914---	163	----	----	73,280	---	-----	---	---
1915---	211	----	----	105,526	---	-----	---	---
1916---	346	----	----	150,677	---	-----	---	---
1917---	459	----	11,720	216,831	18.5	-----	---	---
1918---	353	----	9,778	172,518	17.6	-----	---	---
1919---	385	----	10,000	167,313	16.7	-----	---	---
1920---	468	----	11,948	203,472	17.0	6,175	4.0	247
1921---	452	----	11,209	193,928	17.3	-----	---	---
1922---	513	----	12,508	215,321	17.2	-----	---	---
1923---	627	----	16,357	277,010	16.9	-----	---	---
1924 2/	---	----	----	------	---	-----	---	---
1925---	732	----	18,677	307,073	16.4	7,189	4.0	284
1926---	777	----	19,540	327,653	16.8	7,331	4.0	290
1927---	837	----	21,128	362,014	17.1	7,411	4.0	293
1928---	947	----	23,327	414,891	17.8	7,476	4.0	296
1929---	1,090	----	26,182	465,804	17.8	7,498	4.0	298
1930---	1,143	----	27,888	507,549	18.2	7,642	4.0	303
1931---	1,112	----	26,308	510,714	19.4	7,812	3.9	306
1932---	1,005	----	20,351	427,044	21.0	7,858	3.9	310
1933---	881	----	15,447	358,501	23.2	7,849	4.0	313
1934---	793	----	13,694	325,837	23.8	8,015	4.0	322
1935---	809	----	15,573	364,218	23.4	7,977	4.0	322
1936---	876	----	17,344	404,412	23.3	7,912	4.0	319
1937---	992	----	20,772	496,562	23.9	7,923	4.0	320
1938---	1,106	----	23,701	558,993	23.6	7,831	4.0	317
1939---	1,228	----	25,949	625,284	24.1	7,977	4.1	323
1940---	1,300	----	27,948	676,141	24.2	8,133	4.1	331
1941---	1,383	----	31,381	763,502	24.3	8,225	4.1	335
1942---	1,421	----	32,957	816,117	24.8	8,323	4.1	339
1943---	1,057	----	24,155	616,972	25.5	8,325	4.1	338
1944---	954	----	20,825	561,587	27.0	8,296	4.1	336
1945---	949	----	21,254	577,200	27.2	8,592	4.0	346
1946---	1,124	----	23,331	627,878	27.0	8,635	4.0	349
1947---	1,426	----	28,812	775,546	26.9	8,638	4.0	348
1948---	1,668	----	33,274	886,129	26.6	8,675	4.0	350
1949---	1,787	----	35,851	943,939	26.3	8,907	4.0	359
1950---	1,973	----	40,100	1,088,872	27.2	9,172	4.0	370
1951---	2,143	----	42,949	1,186,615	27.6	9,195	4.0	370
1952---	2,109	----	40,105	1,166,297	29.1	9,192	4.0	366
1953---	2,151	----	40,983	1,226,588	29.9	9,253	4.0	368
1954---	2,175	----	41,254	1,311,698	31.8	9,363	4.0	372
1955---	2,288	----	41,240	1,333,866	32.3	9,502	3.9	375
1956---	2,266	----	40,984	1,406,306	34.4	9,713	3.9	383
1957 3/	1,700	2,310	41,638	1,479,799	35.5	9,894	3.9	389
1958---	1,544	2,293	39,985	1,548,884	38.7	10,068	3.9	394
1959---	1,500	2,337	40,284	1,607,538	39.9	10,327	3.9	401
1960---	1,509	2,397	41,293	1,746,752	42.3	-----	---	---
1961---	1,395	2,448	42,558	1,867,469	43.9	10,796	3.9	4/ 418
1962---	1,436	2,472	42,034	1,958,355	46.6	11,032	3.9	426
1963---	1,441	2,516	41,937	2,006,534	47.8	-----	---	---

1/ Estimated.
2/ Date for collecting data changed in 1924 from July 1 to January 1.
3/ Prior to 1957 associations were counted on the basis of supervisor circuits.
4/ Date for summarizing data changed in 1961 from January 1 to May 1.

OWNER-SAMPLER DAIRY RECORDKEEPING IN THE UNITED STATES
(January 1, 1963)

State	Counties	Herds	Cows	Milk cows in United States 1/	
				Total	in O-S
	Number	Number	Number	Thousands	Percent
Me	12	136	4,293	93	4.6
N. H	6	94	2,410	51	4.7
Vt	13	630	21,421	258	8.3
Mass	11	107	2,982	92	3.2
R. I	4	6	219	13	1.7
Conn	8	83	2,890	82	3.5
N. Y	48	3,067	97,257	1,253	7.8
Pa	59	1,406	37,898	872	4.3
N. J	8	107	4,065	125	3.3
Md	14	107	3,998	215	1.9
Del	3	20	470	25	1.9
Va	23	86	2,767	324	.9
W. Va	3	11	479	119	.4
Ky	2	4	80	493	(2)
N. C	14	49	1,732	256	.7
S. C	2	2	93	104	.1
Ga	1	1	105	203	.1
Fla	6	7	2,142	180	1.2
Ala	2	4	216	229	.1
Miss	-	-	-	329	0
Tenn	2	2	45	493	(2)
La	2	4	196	227	.1
Ark	11	27	808	208	.4
Ohio	83	1,602	37,244	654	5.7
Ind	16	286	6,765	410	1.7
Ill	33	397	11,683	539	2.2
Mich	71	1,778	50,334	637	7.9
Wis	68	10,889	312,439	2,138	14.6
Minn	83	1,552	37,845	1,275	3.0
Iowa	97	1,467	32,276	832	3.9
Mo	20	61	1,856	641	.3
N. Dak	8	38	879	268	.3
S. Dak	28	276	6,079	238	2.6
Nebr	30	75	2,200	300	7.3
Kans	22	119	3,328	316	1.1
Okla	8	42	1,600	229	.7
Tex	3	8	322	544	.1
Mont	6	38	1,597	73	2.2
Idaho	2	5	129	197	.1
Wyo	5	18	831	28	3.0
Nev	2	5	368	15	2.5
Utah	9	29	748	93	.8
Colo	8	54	2,783	116	2.4
N. Mex	6	6	645	38	1.7
Ariz	3	17	3,968	49	8.1
Wash	18	229	6,752	237	2.8
Oreg	23	148	4,170	153	2.7
Calif	23	277	13,071	805	1.6
Hawaii	-	-	-	14	-
Alaska	-	-	-	3	-
P. R	-	-	-	-	-
Total	929	25,376	726,478	17,086	4.3

1/ Estimated by the Statistical Reporting Service; number of milk cows on farms during year excluding heifers not yet fresh.

2/ Less than one-tenth of one percent.

WEIGH-A-DAY-A-MONTH DAIRY RECORDKEEPING IN THE UNITED STATES
(January 1, 1963)

State	Counties	Herds	Cows	Milk cows in United States 1/	
				Total	in WADAM
	Number	Number	Number	Thousands	Percent
Me	2	8	203	93	.2
N. H	2	4	110	51	.2
Vt	-	-	-	258	0
Mass	-	-	-	92	0
R. I	-	-	-	13	0
Conn	-	-	-	82	0
N. Y	-	-	-	1,253	0
Pa	-	-	-	872	0
N. J	2	3	150	125	.1
Md	-	-	-	215	0
Del	1	3	55	25	.2
Va	2	2	143	324	(2)
W. Va	21	73	1,755	119	1.5
Ky	25	185	3,500	493	.7
N. C	32	87	3,004	256	1.2
S. C	10	41	1,616	104	1.6
Ga	13	40	2,500	203	1.2
Fla 3/	-	-	-	180	0
Ala	21	41	2,432	229	1.1
Miss	15	85	3,231	329	1.0
Tenn	24	72	1,491	493	.3
La	29	143	8,351	227	3.7
Ark	12	52	720	208	.3
Ohio	1	10	324	654	(2)
Ind	-	-	-	410	0
Ill	35	252	6,391	539	1.2
Mich	19	56	1,462	637	.2
Wis	-	-	-	2,138	0
Minn	-	-	-	1,275	0
Iowa	2	12	153	832	(2)
Mo	47	178	4,861	641	.8
N. Dak	12	52	1,207	268	.5
S. Dak	-	-	-	238	0
Nebr	3	6	150	300	.1
Kans	2	3	154	316	(2)
Okla	10	37	1,622	229	.7
Tex	7	14	1,004	544	.2
Mont	3	6	190	73	.3
Idaho	2	7	486	197	.2
Wyo	-	-	-	28	0
Nev	-	-	-	15	0
Utah	1	1	13	93	(2)
Colo	-	-	-	116	0
N. Mex	5	5	1,380	38	3.6
Ariz	-	-	-	49	0
Wash	-	-	-	237	0
Oreg	-	-	-	153	0
Calif	-	-	-	805	0
Hawaii	2	4	180	14	1.3
Alaska	-	-	-	3	0
P. R	13	18	1,654	-	-
Total	375	1,500	50,492	17,086	.3

1/ Estimated by the Statistical Reporting Service; number of milk cows on farms during year excluding heifers not yet fresh.
2/ Less than one-tenth of one percent.
3/ Florida: Used modified WADAM Plan - 18 counties, 38 herds, 11,705 cows.

THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM
(January 1, 1963)

State	Standard DHIA		Owner-Sampler		Weigh-a-Day a-Month		Total		Milk cows in U. S.	
	Herds	Cows	Herds	Cows	Herds	Cows	Herds	Cows	Total [1]	In all plans [2]
	Number	Number	Number	Number	Number	Number	Number	Number	Thousands	Percent
Me	573	21,610	136	4,293	8	203	717	26,106	93	28.1
N. H	368	11,101	94	2,410	4	110	466	13,621	51	26.7
Vt	1,073	49,689	630	21,421	-	-	1,703	71,110	258	27.6
Mass	539	23,134	107	2,982	-	-	646	26,116	92	28.4
R. I	48	2,449	6	219	-	-	54	2,668	13	20.5
Conn	484	23,396	83	2,890	-	-	567	26,286	82	32.1
N. Y	3,877	170,000	3,067	97,257	-	-	6,944	267,257	1,253	21.3
Pa	4,936	172,447	1,406	37,898	-	-	6,342	210,345	872	24.1
N. J	547	29,474	107	4,065	3	150	657	33,689	125	27.0
Md	905	48,234	107	3,998	-	-	1,012	52,232	215	24.3
Del	107	4,372	20	470	3	55	130	4,897	25	19.6
Va	1,156	65,335	86	2,767	2	143	1,244	68,245	324	21.1
W. Va	158	7,210	11	479	73	1,755	242	9,444	119	7.9
Ky	535	21,000	4	80	185	3,500	724	24,580	493	5.0
N. C	820	42,845	49	1,732	87	3,004	956	47,581	256	18.6
S. C	244	19,553	2	93	41	1,616	287	21,262	104	20.4
Ga	378	25,460	1	105	40	2,500	419	28,065	203	13.8
Fla	116	19,207	7	2,142	-	-	123	21,349	180	11.9
Ala	272	21,916	4	216	41	2,432	317	24,564	229	10.7
Miss	177	10,266	-	-	85	3,231	262	13,497	329	4.1
Tenn	484	24,369	2	45	72	1,491	558	25,905	493	5.3
La	65	5,214	4	196	143	8,351	212	13,761	227	6.1
Ark	79	3,583	27	808	52	720	158	5,111	208	2.5
Ohio	2,317	80,446	1,602	37,244	10	324	3,929	118,014	654	18.0
Ind	1,110	38,210	286	6,765	-	-	1,396	44,975	410	11.0
Ill	1,672	62,428	397	11,683	252	6,391	2,321	80,502	539	14.9
Mich	2,086	78,800	1,778	50,334	56	1,462	3,920	130,596	637	20.5
Wis	2,912	114,405	10,889	312,439	-	-	13,801	426,844	2,138	20.0
Minn	4,040	125,156	1,552	37,845	-	-	5,592	163,001	1,275	12.8
Iowa	1,862	57,973	1,467	32,276	12	153	3,341	90,402	832	10.9
Mo	634	27,228	61	1,856	178	4,861	873	33,945	641	5.3
N. Dak	178	6,014	38	879	52	1,207	268	8,100	268	3.0
S. Dak	206	7,754	276	6,079	-	-	482	13,833	238	5.8
Nebr	330	13,750	75	2,200	6	150	411	16,100	300	5.4
Kans	776	29,175	119	3,328	3	154	898	32,657	316	10.3
Okla	182	9,255	42	1,600	37	1,622	261	12,477	229	5.4
Tex	390	27,995	8	322	14	1,004	412	29,321	544	5.4
Mont	88	4,055	38	1,597	6	190	132	5,842	73	8.0
Idaho	727	26,180	5	129	7	486	739	26,795	197	13.6
Wyo	34	1,218	18	831	-	-	52	2,049	28	7.3
Nev	52	4,042	5	368	-	-	57	4,410	15	29.4
Utah	441	18,447	29	748	1	13	471	19,208	93	20.7
Colo	206	11,976	54	2,783	-	-	260	14,759	116	12.7
N. Mex	44	4,383	6	645	5	1,380	55	6,408	38	16.9
Ariz	140	20,860	17	3,968	-	-	157	24,828	49	50.7
Wash	904	49,534	229	6,752	-	-	1,133	56,286	237	23.7
Oreg	500	28,100	148	4,170	-	-	648	32,270	153	21.1
Calif	2,103	330,389	277	13,071	-	-	2,380	343,460	805	42.7
Hawaii	11	1,240	-	-	4	180	15	1,420	14	10.1
Alaska	10	430	-	-	-	-	10	430	3	14.3
P. R	41	5,227	-	-	18	1,654	59	6,881	-	-
Total or: average	41,937	2,006,534	25,376	726,478	1,500	50,492	68,813	2,783,504	17,086	16.3

[1] Estimated by the Statistical Reporting Service; number of milk cows on farms during year excluding heifers not yet fresh.

[2] Percentage of cows included in the National Cooperative Dairy Herd Improvement Program.

COUNTIES, BY STATE, WITH 20% OR MORE COWS INCLUDED IN THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM

(January 1, 1963)

State	County (Name)	Cows (%)
ALABAMA		
	Montgomery	43
	Elmore	38
	Russell	31
	Jefferson	26
ARIZONA		
	Pima	131
	Greenlee	71
	Maricopa	64
	Pinal	53
	Graham	43
	Cochise	21
CALIFORNIA		
	San Diego	69
	Santa Cruz	62
	Monterey	61
	Madera	59
	Sonoma	58
	Napa	57
	San Joaquin	57
	Fresno	56
	Marin	56
	San Bernardino	56
	Santa Barbara	56
	Stanislaus	55
	Tulare	49
	Inyo	47
	Riverside	47
	Kern	46
	Del Norte	45
	Merced	44
	Shasta	43
	Los Angeles	42
	Sacramento	42
	Santa Clara	42
	San Luis Obispo	39
	Tehama	39
	Placer-Nevada	37
	Solano-Yolo	37
	Kings	32
	Lassen	30
	Butte	28
	Humboldt	28
	Glenn	25
	Yuba-Sutter	23
COLORADO		
	Chaffee	73
	Pueblo	38
	Fremont	31
	Huerfano	30
	Delta	26
	Jefferson	25
	Larimer	23
	Boulder	22
	Weld	21
CONNECTICUT		
	Middlesex	50
	Litchfield	44
	Tolland	34
	Windham	30
	Hartford	28
	New Haven	27
	New London	21
DELAWARE		
	Sussex	25
FLORIDA		
	Gilchrist	63
	Sarasota	58
	Putnam	57
	Highlands	52
	Orsnge	50
	Manatee	49
	Seminole	42
	Osceola	41
	Jefferson	39
	Volusia	38
	Martin	37
	Nassau	33
	Leon	30
	Levy	30
	Dade	25
	Lafayette	25
	Jackson	24
	Washington	24
	Okeechobee	23
	Alachua	20
	Duval	20
	Polk	20
GEORGIA		
	Dooly	100
	Evans	100
	Douglas	80
	Tattnall	80
	Houston	79
	Macon	75
	Raburn	75
	Baldwin	73
	Fayette	66
	Lee	66
	Turner	66
	Rockdale	62
	Lincoln	60
	Newton	60
	Carroll	57
	Stewart	55
	Clarke	51
	Jeff Davis	50
	Montgomery	50
	Mitchell	48
	Floyd	45
	Spalding	45
	Walton	44
	Heard	43
	Jefferson	41
	McIntosh	39
	Sumter	39
	Jones	37
	Worth	36
	Peach	35
	Brooks	33
	Butts	32
	Richmond	32
	Lamar	30
	Henry	27
	Laurens	25
	Jasper	21
ILLINOIS		
	Kendall	45
	Christian	37
	Du Page	29
	Moultrie	27
	Stark	27
	Kankakee	26
	Lake	26
	DeKalb	25
	Effingham	25
	Bond	24
ILLINOIS (con't.)		
	Jackson	24
	Champaign	23
	Grundy	23
	Macon	23
	McHenry	22
	Jefferson	21
	Carroll	20
	Jasper	20
INDIANA		
	Howard	33
	Boone	29
	Blackford	21
	Cass	21
IOWA		
	Lee	33
	Cerro Gordo	27
	Dallas	27
	Polk	27
	Franklin	26
	Scott	24
	Story	22
	Sac	21
	Warren	21
KANSAS		
	Saline	36
	Comanche	35
	Finney	31
	Pawnee	28
	Cowley	27
	Harvey	27
	Reno	27
	Stafford	24
	Dickinson	23
	Harper	23
	Hamilton	21
	Marion	21
	Pratt	21
	Wallace	21
LOUISIANA		
	Rapides	40
	Richland	34
	Beauregard	32
	Lafayette	24
	Franklin	23
	Morehouse	23
	West Carroll	22
	Iberia	21
MAINE		
	Oxford	49
	Cumberland	41
	Twin	41
	Penobscot	31
	Waldo	30
	Somerset	29
	York	29
	Knox-Lincoln	25
	Kennebec	22
	Aroostook	21
	Hancock	21
	Piscataquis	21
MARYLAND		
	Howard	56
	Kent	42
MARYLAND (con't.)		
	Montgomery	38
	Harford	34
	Dorchester	33
	Baltimore	32
	Carroll	27
	Talbot	27
	Cecil	26
	Marva	26
	Frederick	24
MASSACHUSETTS		
	Barnstable	44
	Berkshire	40
	Essex	34
	Middlesex	29
	Hampshire	28
	Plymouth	27
	Worcester	24
	Dukes	22
	Franklin	22
MICHIGAN		
	Jackson	40
	Ingham	38
	Lenawee	38
	Calhoun	34
	Livingston	33
	Monroe	32
	St. Joseph	32
	Oscoda	31
	Kalamazoo	30
	Oakland	30
	Washtenaw	30
	Barry	29
	Eaton	29
	Berrien	27
	Clinton	27
	Muskegon	27
	Alger	25
	Shiawassee	25
	Saginaw	24
	Baraga	23
	Iosco	23
	Tuscola	23
	Branch	22
	Gratiot	22
	Huron	22
	Lapeer	22
	Mason	22
	Genesee	21
	Kent	20
MINNESOTA		
	Dakota	31
	Winona	28
	Goodhue	26
	McLeod	25
	Washington	24
	Hennepin	22
	Olmsted	22
NEBRASKA		
	Lancaster	25
NEVADA		
	Clark	65
	Lincoln	65
	Churchill	50
	Douglas	34

COUNTIES, BY STATE, WITH 20% OR MORE COWS INCLUDED IN THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM (con't.)

(January 1, 1963)

State	County (Name)	Cows (%)
NEW HAMPSHIRE		
	Cheshire	43
	Coos	40
	Hillsboro	39
	Sullivan	38
	Grafton	36
	Belknap	35
	Merrimack	34
	Rockingham	23
	Strafford	20
NEW JERSEY		
	Burlington	32
	Hunterton	32
	Somerset	31
	Warren	30
	Gloucester	29
	Sussex	27
	Salem-Cumberland	23
	Morris	20
NEW MEXICO		
	Taos	100
	Dona Ana	85
	Valencia	49
	Sierra	45
	Sandoval	34
	Eddy	31
NEW YORK		
	Suffolk	51
	Genesee	48
	Ontario	48
	Dutchess	44
	Columbia	39
	Tompkins	38
	Onondaga	37
	Wayne	37
	Orleans	35
	Monroe	33
	Schuyler	31
	Chenango	29
	Livingston	29
	Schoharie	29
	Chemung	28
	Cortland	28
	Seneca	28
	Chautauqua	27
	Delaware	27
	Wyoming	27
	Erie	24
	Tioga	24
	Washington	24
	Cayuga	23
	Albany	22
	Madison	22
	Niagara	22
	Broome	21
	Montgomery	21
	Ulster	21
	Greene	20
	Steuben	20
NORTH CAROLINA		
	Carteret	81
	Lenoir	67
	New Hanover	56
	Martin	50
	Washington	45
	Cumberland	44
	Wake	40
	Guilford	36
NORTH CAROLINA (con't.)		
	Edgecomb	35
	Pitt	32
	Craven	31
	Gaston	31
	Bladen	29
	Columbus	29
	Orange	29
	Durham	28
	Halifax	26
	Pender	26
	Wilson	26
	Beaufort	24
	Cleveland	23
	Henderson	23
	Brunswick	22
	Jones	22
	Randolph	22
	Scotland	22
	Pamlico	21
OHIO		
	Marion	42
	Medina	41
	Champaign	34
	Lorain	34
	Allen	32
	Clark	29
	Fulton	29
	Logan	29
	Auglaize	27
	Henry	27
	Ashland	26
	Fairfield	26
	Miami	26
	Erie	25
	Holmes	25
	Shelby	25
	Greene	24
	Huron	23
	Wayne	23
	Tuscarawas	22
	Geauga	21
	Portage	20
	Seneca	20
OREGON		
	Josephine	35
	Lane	27
	Washington	27
	Clackamas	26
	Multnomah	26
	Tillamook	23
	Marion	22
	Clatsop	20
PENNSYLVANIA		
	Montgomery	41
	Blair	38
	Clinton	38
	Dauphin	38
	Union	38
	Bucks	34
	Allegheny	33
	Montour	33
	Luzerne	32
	Perry	31
	Cumberland	30
	Mifflin	30
	Potter	29
	Sullivan	29
	Centre	28
	Chester	28
PENNSYLVANIA (con't.)		
	Huntingdon	28
	McKean	28
	Northumberland	28
	Wyoming	28
	Juniata	27
	Lehigh	27
	Bedford	26
	Bradford	26
	Columbia	26
	Berks	25
	Lancaster	25
	Lebanon	25
	Northampton	25
	Fulton	24
	York	24
	Indiana	23
	Lawrence	23
	Susquehanna	23
	Tioga	23
	Lycoming	22
	Cambria	21
	Franklin	21
	Wayne	21
	Erie	20
RHODE ISLAND		
	Kent	42
	Washington	21
	Newport	20
SOUTH CAROLINA		
	Sumter	55
	Bamberg	50
	Saluda	47
	Lee	46
	Orangeburg	43
	Marlboro	39
	Beaufort	36
	Newberry	34
	Colleton	31
	Jasper	27
	Greenville	26
	Laurens	24
	Edgefield	23
SOUTH DAKOTA		
	Butte	41
	Lawrence	32
	Custer	26
	Pennington	25
UTAH		
	Wasatch	47
	Summit	39
	Morgan	36
	Salt Lake	36
	Utah	35
	Weber	27
	Davis	26
	Cache	23
	Tooele	21
VERMONT		
	Windham	37
	Bennington	36
	Windsor	36
	Addison	35
	Orange	30
	Rutland	30
	Chittenden	27
VERMONT (con't.)		
	Franklin	27
	Washington	26
	Lamoille	24
	Caledonia	22
	Orleans	22
VIRGINIA		
	James City	77
	Lancaster	71
	Northampton	71
	Clarke	59
	Powhatan	58
	Princess Anne	57
	Loudoun	47
	Southampton	42
	Fairfax	40
	Norfolk	40
	Orange	40
	Culpeper	39
	Spotsylvania	39
	Madison	38
	Augusta	37
	Bath	37
	Dinwiddie	37
	Prince George	37
	Prince William	37
	Fauquier	35
	Isle of Wight	35
	Nansemond	35
	Rockingham	35
	Roanoke	33
	Pulaski	32
	Warren	32
	Charlotte	31
	Amelia	30
	Henrico	28
	King William	27
	Albemarle	26
	Brunswick	26
	Franklin	26
	Nottoway	25
	Hanover	24
	Rockbridge	23
	Cumberland	22
	Wise	21
WASHINGTON		
	Jefferson	56
	Grays Harbor	51
	Mason	43
	Island	43
	Skagit	43
	Thurston	43
	Pierce	42
	Spokane	37
	Grant	35
	Wahkiakum	35
	Clallam	32
	Klickitat	32
	Walla Walla	31
	Clark	26
	Cowlitz	26
	King	26
	Chelan	24
	Kittitas	24
	Pacific	22
	Whatcom	21
	Franklin	20
	Lewis	20
	Snohomish	20

COUNTIES, BY STATE, WITH 20% OR MORE COWS INCLUDED IN THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM (con't.)

(January 1, 1963)

State	County (Name)	Cows (%)
WEST VIRGINIA		
	Ohio	32
	Mason	29
	Jefferson	26
	Greenbrier	23
	Harrison	21
WISCONSIN		
	Winnebago	39
	Kenosha	37
	Kewaunee	32
	Calumet	30
	Rock	30
	Racine	29
	Waukesha	29
	Manitowoc	28
	Outagamie	27
	Walworth	27
	Barron	26
	Florence	26
WISCONSIN (con't.)		
	Green Lake	25
	Jefferson	24
	Oconto	24
	Sheboygan	24
	Columbia	23
	Dunn	23
	Green	23
	La Crosse	23
	St. Croix	23
	Washington	23
	Brown	22
	Marquette	22
	Ozaukee	22
	Douglas	21
	Polk	21
	Shawano	21
	Trempealeau	21
	Wood	21
	Fond du Lac	20
	Richland	20
	Vernon	20

NUMBER OF RECORDS PROCESSED IN DHIA COMPUTING CENTERS*
(as reported by State Extension Dairymen, January 1, 1963)

State	DHIA Records		DHIR Records		Owner-Sampler	
	Herds	Cows	Herds	Cows	Herds	Cows
	Number	Number	Number	Number	Number	Number
Ala	220	17,797	17	953	4	216
Alaska	-	-	-	-	-	-
Ariz	26	2,848	7	771	4	272
Ark	72	3,360	7	223	27	808
Calif	-	-	-	-	-	-
Colo	182	10,870	24	1,106	22	550
Conn	270	12,346	78	4,403	68	2,020
Del	101	4,207	6	165	20	470
Fla	19	3,601	13	2,344	-	-
Ga	200	13,436	15	1,064	1	105
Idaho	36	1,936	3	173	3	105
Ill	1,133	42,720	115	4,005	221	6,051
Ind	957	33,213	153	4,997	40	970
Iowa	1,254	41,181	244	7,911	522	11,988
Kans	366	15,087	76	2,895	30	847
Ky	232	8,700	34	1,100	1	25
La	41	2,478	5	374	4	196
Me	354	12,942	51	2,442	88	2,854
Md	421	22,591	95	4,393	69	2,464
Mass	382	16,118	90	3,959	72	2,139
Mich	1,947	72,528	139	6,272	1,477	41,905
Minn	1,493	46,283	145	4,961	971	23,692
Miss	67	4,020	21	1,250	-	-
Mo	63	2,491	27	1,109	9	217
Mont	25	1,167	2	101	17	729
Nebr	171	7,833	35	1,450	67	2,070
Nev	18	1,363	5	286	-	-
N. H	320	8,949	48	2,152	52	1,397
N. J	148	8,335	38	1,886	22	816
N. Mex	23	2,318	10	640	1	10
N. Y	3,009	136,000	362	15,900	2,337	74,000
N. C	731	37,779	89	5,066	47	1,708
N. Dak	146	5,163	14	438	21	472
Ohio	923	30,832	202	7,775	253	6,451
Okla	85	4,031	34	2,069	12	687
Oreg	103	6,920	24	1,700	17	472
Pa	4,780	167,003	156	5,444	1,406	37,898
P. R	14	3,182	-	-	-	-
R. I	22	1,289	14	501	5	205
S. C	201	16,210	43	3,343	2	93
S. Dak	61	2,332	16	595	17	422
Tenn	132	6,453	46	2,673	-	-
Tex	185	13,694	44	3,212	3	119
Utah	427	17,913	14	534	29	748
Vt	445	20,408	58	2,400	175	5,825
Va	613	31,847	84	6,483	86	2,767
Wash	144	7,291	29	1,742	10	290
W. Va	82	2,759	12	541	4	81
Wis	2,050	80,975	354	15,045	4,549	137,380
Wyo	30	1,020	2	108	18	831
Total	24,724	1,013,819	3,100	138,954	12,803	373,365

*WADAM Records: Illinois, 45 herds, 1,216 cows; Louisiana, 143 herds, 8,351 cows; Michigan, 56 herds, 1,462 cows; Montana, 6 herds, 190 cows; North Carolina, 13 herds, 372 cows; Utah, 1 herd 13 cows; West Virginia, 73 herds, 1,755 cows.
Total - 337 herds, and 13,359 cows.

OFFICIALS IN CHARGE OF DAIRY-HERD-IMPROVEMENT ASSOCIATIONS IN THE STATES

Ala------ R. Sam Jones, Jr., Ext. Service, Auburn University, Auburn.
Alaska--- W. J. Sweetman, Ext. Service, University of Alaska, Palmer.
Ariz----- W. R. Van Sant, Ext. Service, University of Arizona, Tucson.
Ark------ Ralph Williams, Ext. Service, P. O. Box 391, University of Arkansas, Little Rock.
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N. Y----- J. D. Burke, Ext. Service, Cornell University, Ithaca.
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Ohio----- R. A. Porterfield, Ext. Service, Ohio State University, Columbus 10.
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Oreg----- D. E. Anderson, Ext. Service, Oregon State University, Corvallis.
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R. I----- John W. Atwood, Ext. Service, University of Rhode Island, Kingston.
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Tenn----- V. D. Parsons, Ext. Service, University of Tennessee, P. O. Box 1071, Knoxville 7.
Tex------ J. W. Davis, Jr., Ext. Service, Texas A & M College, College Station.
Utah----- John J. Barnard, Ext. Service, Utah State University, Logan.
Vt------- W. P. Leamy, Ext. Service, University of Vermont, Burlington.
Va------- J. A. Lineweaver, Ext. Service, Virginia Polytechnic Institute, Blacksburg.
Wash----- Willard Winters, Ext. Service, Washington State University, Puyallup.
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Wis------ E. E. Starkey, Ext. Service, University of Wisconsin, Madison 6.
Wyo------ I. W. Slater, Ext. Service, University of Wyoming, Laramie.

MAY 15, 1963

DEADLINE FOR REPORTING LACTATION RECORDS

DHIA-718 - DHIA-1095

To be included in the next sire summary tabulation, all available lactation records should be reported to the Branch by May 15, 1963.

Supervisors should forward manually calculated lactation records on DHIA-718 as they are completed.

JUNE 1, 1963

DEADLINE FOR REPORTING DHIA YEARLY HERD RECORDS

DHIA-780 - DHIA-205-9 - DHIA-1105

DHIA Herd and Association Summary and State and national DHIA tabulations of DHIA yearly herd records will be issued next July using testing years ending between May 1, 1962 and April 30, 1963, will be included in the tabulations.

Supervisors should report manually calculated yearly herd records on DHIA-780. These should be forwarded to the Branch as they are received and checked in the State office. Computing Centers should report yearly herd records on form DHIA-205-9 or DHIA-1105.

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA
OWNER SAMPLER
WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter
ARS-44-129
(Vol. 39, No. 3)

March 1963

NUMBER OF NATION'S DAIRY CATTLE BEING BRED ARTIFICIALLY

During 1962, 7,748,687 cows, or 41.4 percent of the total cows and heifers 2 years old and over kept for dairy purposes, were bred artificially. This is an increase of over 265,000 cows over the comparable figure for the year 1961. This total may include a small proportion of beef cattle since no distinction was made of animals bred to beef bulls.

During the year the number of AI organizations operating studs decreased from 56 to 51. The number of dairy bulls which were in service during 1962 was 3,158, as compared to 2,036 in 1961.

Wisconsin continued to lead all States in number of cows bred artificially, with 1,264,006 being bred to dairy sires. The following States reported 50 percent or more of all cows bred artificially to dairy sires: Connecticut, 60.8; New Hampshire, 55.1; Hawaii, 54.5; New Jersey, 54.4; Maine, 53.4; Pennsylvania, 52.9; Wisconsin, 52.1; and Massachusetts, 51.9.

The table on page 3 presents a yearly summary of the scope of AI in the United States. The production statistics in the rightmost portion of the table must be interpreted in terms of (1) the use of daughter-herdmate comparisons rather than daughter-dam comparisons in 1962, (2) yearly variation in number and breed of sires summarized, notably from 1960-1962, and (3) the inclusion of non-AI progeny in summaries prior to 1960.

Issued April 1963

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On page 4 is presented the summary of artificial insemination activity by States for 1962. The primary information in this table is the number of cows bred in each of the various States. Cows bred are divided into those bred to dairy bulls and those bred to beef bulls. The number of herds serviced in each State are estimated values. Many organizations do not report herds enrolled; those which do may report herds not active in 1962. Also the number of registered cows bred to dairy bulls gives only totals reported by the AI organizations. A number of units fail to report the number of registered animals. The total cows bred to dairy sires for which registered-non-registered distinction was made was 6,475,921. This yields an overall percentage of registered cows in A. I. of 11.8%.

The rightmost column of the table presented on page 4 represents an estimate of the percentage of milk cows bred by AI to dairy sires. These values will slightly underestimate the percentage of milk cows bred generally by AI in those areas where beef sires were used on dairy cows.

The map on page 7 graphically illustrates the density of artificial insemination in the various States.

On pages 5 and 6 are listed the individual artificial insemination organizations active as of January 1, 1963. For each the number of bulls in service by breed and the total cows bred in 1962 are listed.

STATUS OF ARTIFICIAL-BREEDING PROGRAM IN THE UNITED STATES 1939-63

Year	Sires in service					Herds	cows bred to				AI sires summarized 1/				
	Studs	Dairy	Beef	Total	Average per stud		Dairy sires	Beef sires	Total	Average per sire	Total	Dams 5/ Milk	Dams 5/ Fat	Daughters Milk	Daughters Fat
	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number	Pounds	Pounds	Pounds	Pounds
1939	7	-	-	33	4.7	646	-	-	2/ 7,359	228	-	-	-	-	-
1940	25	-	-	138	5.5	2,971	-	-	2/ 33,977	246	-	-	-	-	-
1941	35	-	-	237	6.8	5,997	-	-	2/ 70,751	299	-	-	-	-	-
1942	46	-	-	412	9.0	12,118	-	-	2/ 112,788	274	-	-	-	-	-
1943	59	-	-	574	9.7	23,448	-	-	2/ 182,524	318	135	9,559	387	10,155	419
1944	56	-	-	657	11.7	28,627	-	-	2/ 218,070	332	129	9,965	391	10,490	421
1945	67	-	-	729	10.9	43,998	-	-	2/ 360,732	495	147	9,629	387	10,488	428
1946	78	-	-	900	11.5	73,293	-	-	537,376	597	209	10,270	401	10,741	428
1947	84	-	-	1,453	17.3	140,571	-	-	1,184,168	815	335	10,099	405	10,580	430
1948	91	-	-	1,745	19.2	224,493	-	-	1,713,581	982	426	10,161	407	10,576	433
1949	90	-	-	1,940	21.6	316,177	-	-	2,091,175	1,078	514	10,157	412	10,499	436
1950	97	-	-	2,104	21.7	3/ 409,300	-	-	2,619,555	1,245	559	10,236	415	10,734	444
1951	94	-	-	2,187	23.3	3/ 548,300	-	-	3,509,573	1,605	634	10,267	419	11,009	459
1952	94	-	-	2,324	24.7	3/ 671,100	-	-	4,295,243	1,848	688	10,310	422	11,210	471
1953	96	-	-	2,598	27.1	3/ 755,000	-	-	4,845,222	1,865	953	10,375	429	11,176	473
1954	93	-	-	2,661	28.6	3/ 805,000	-	-	5,155,240	1,937	960	10,483	432	11,239	475
1955	79	-	-	2,450	31.0	3/ 845,900	-	-	5,413,874	2,210	883	10,575	436	11,265	476
1956	79	-	-	2,553	32.3	3/ 900,400	-	-	5,762,656	2,257	932	10,600	438	11,301	477
1957	75	-	-	2,651	35.3	3/ 946,000	-	-	6,055,982	2,284	1,074	10,626	440	11,304	477
1958	71	-	-	2,676	37.7	3/ 975,372	-	-	6,645,568	2,483	1,012	10,772	446	11,345	478
1959	64	-	-	2,460	38.4	3/ 930,059	-	-	6,932,294	2,816	963	10,918	451	11,493	482
1960	62	-	-	2,544	41.0	3/ 910,000	-	-	7,144,679	2,808	4/ 477	4/ 10,790	4/437	4/ 10,792	4/443
1961	56	-	-	2,486	44.4	3/ 863,781	7,047,148	435,592	7,482,740	3,010	4/ 488	4/ 11,181	4/445	4/ 11,172	4/452
1962	56	2,036	420	2,456	43.9	3/ 862,150	6,837,681	911,006	7,748,687	3,155	4/2,216	4/ 10,601	4/438	4/ 10,386	4/435
1963	51	2,158	401	2,559	50.2	-	-	-	-	-	-	-	-	-	-

1/ Prior to 1962 sires for which dam and daughter records had been compiled were designated as "proved" sires.
2/ Prior to 1946 cows were reported only on the basis of enrollment.
3/ Estimated.
4/ Prior to 1960 records of sires in artificial breeding service included records of both non-AI and AI progeny. Since 1960 records of sires in artificial breeding service include records of AI progeny only.
5/ Beginning in 1962, herdmates were used instead of dams.

STATUS OF ARTIFICIAL-BREEDING PROGRAM
(January 1, 1963)

State	Studs	Herds 1/	Cows bred in State during 1962			Milk cows in United States 2/	
			to Dairy sires		Beef sires		Cows bred to
			Registered 1/	Total	Total	Total	Dairy sires
	Number	Number	Number	Number	Number	Thousands	Percent
Alabama 3/-------	0	3,800	4,804	46,297	4,539	249	18.6
Alaska-----------	1	400	141	1,431	-	3	47.7
Arizona 3/-------	0	150	1,047	12,470	422	54	23.1
Arkansas 3/------	0	3,700	3,087	27,853	7,664	222	12.5
California-------	5	10,500	28,789	360,716	20,127	881	40.9
Colorado---------	1	2,700	3,540	29,824	4,793	124	24.1
Connecticut------	1	4,000	9,794	54,106	8,703	89	60.8
Delaware 3/------	0	900	2,788	9,581	1,628	28	34.2
Florida 3/-------	0	2,700	7,195	91,978	11,460	188	48.9
Georgia 3/-------	0	1,300	5,119	44,809	2,277	221	20.3
Hawaii-----------	1	290	462	8,715	57	16	54.5
Idaho 3/---------	0	11,000	6,871	103,632	5,308	217	47.8
Illinois---------	3	52,500	38,654	223,259	52,670	585	38.2
Indiana----------	1	35,000	18,570	156,440	14,196	449	34.8
Iowa-------------	1	63,000	21,360	312,482	24,166	888	35.2
Kansas-----------	1	17,500	9,618	85,201	15,544	355	24.0
Kentucky---------	1	37,000	16,010	112,581	29,287	544	20.7
Louisiana--------	1	5,700	7,385	63,386	5,630	263	24.1
Maine------------	1	3,500	826	55,501	5,165	104	53.4
Maryland---------	1	11,000	12,949	89,878	4,707	228	39.4
Massachusetts 3/-	0	4,700	11,240	51,354	8,288	99	51.9
Michigan---------	1	38,000	37,475	318,548	44,909	701	45.4
Minnesota--------	2	89,000	33,362	608,036	56,239	1,406	43.2
Mississippi------	1	5,600	1,625	36,450	9,941	350	10.4
Missouri 3/------	0	44,000	8,961	125,294	35,810	673	18.6
Montana 3/-------	0	1,600	960	12,404	5,744	76	16.3
Nebraska 3/------	0	14,000	5,832	57,785	16,829	315	18.3
Nevada 3/--------	0	90	349	4,793	599	17	28.2
New Hampshire----	1	3,900	8,287	31,939	3,945	58	55.1
New Jersey-------	1	4,000	8,240	71,813	1,622	132	54.4
New Mexico 3/----	0	270	846	12,480	1,111	41	30.4
New York---------	1	54,000	100,341	622,050	73,721	1,379	45.1
North Carolina---	1	16,000	10,266	84,345	4,649	278	30.3
North Dakota 3/--	0	8,700	1,185	29,782	4,982	290	10.3
Ohio-------------	2	71,000	50,056	327,741	47,782	720	45.5
Oklahoma 3/------	0	1,700	2,582	19,704	2,745	240	8.2
Oregon-----------	1	15,000	8,287	65,436	20,942	162	40.4
Pennsylvania-----	6	55,000	110,827	517,005	95,167	978	52.9
Puerto Rico------	1	1,600	1,491	31,213	-	-	-
Rhode Island 3/--	0	850	1,210	5,361	904	14	38.3
South Carolina 3/	0	1,900	3,913	29,558	3,296	111	26.6
South Dakota 3/--	0	3,600	2,966	31,780	10,158	256	12.4
Tennessee--------	3	22,000	7,477	92,999	25,506	526	17.7
Texas------------	1	5,500	4,744	75,399	10,851	598	12.6
Utah-------------	1	6,200	2,941	50,878	2,154	105	48.5
Vermont 3/-------	0	8,700	11,611	123,322	13,238	285	43.3
Virginia---------	1	14,000	18,252	96,782	11,733	363	26.7
Washington-------	2	23,000	10,345	120,637	42,492	268	45.0
West Virginia 3/-	0	5,500	3,310	22,203	5,070	126	17.6
Wisconsin--------	6	75,000	93,553	1,264,006	123,658	2,426	52.1
Wyoming 3/-------	0	1,100	752	6,444	8,578	29	22.2
United States----	51	862,150	762,295	6,837,681	911,006	18,730	36.5

1/ Estimated.
2/ Statistical Reporting Service estimate of number of cows and heifers 2 years old and over kept for milk.
3/ Buys semen from studs in other States.

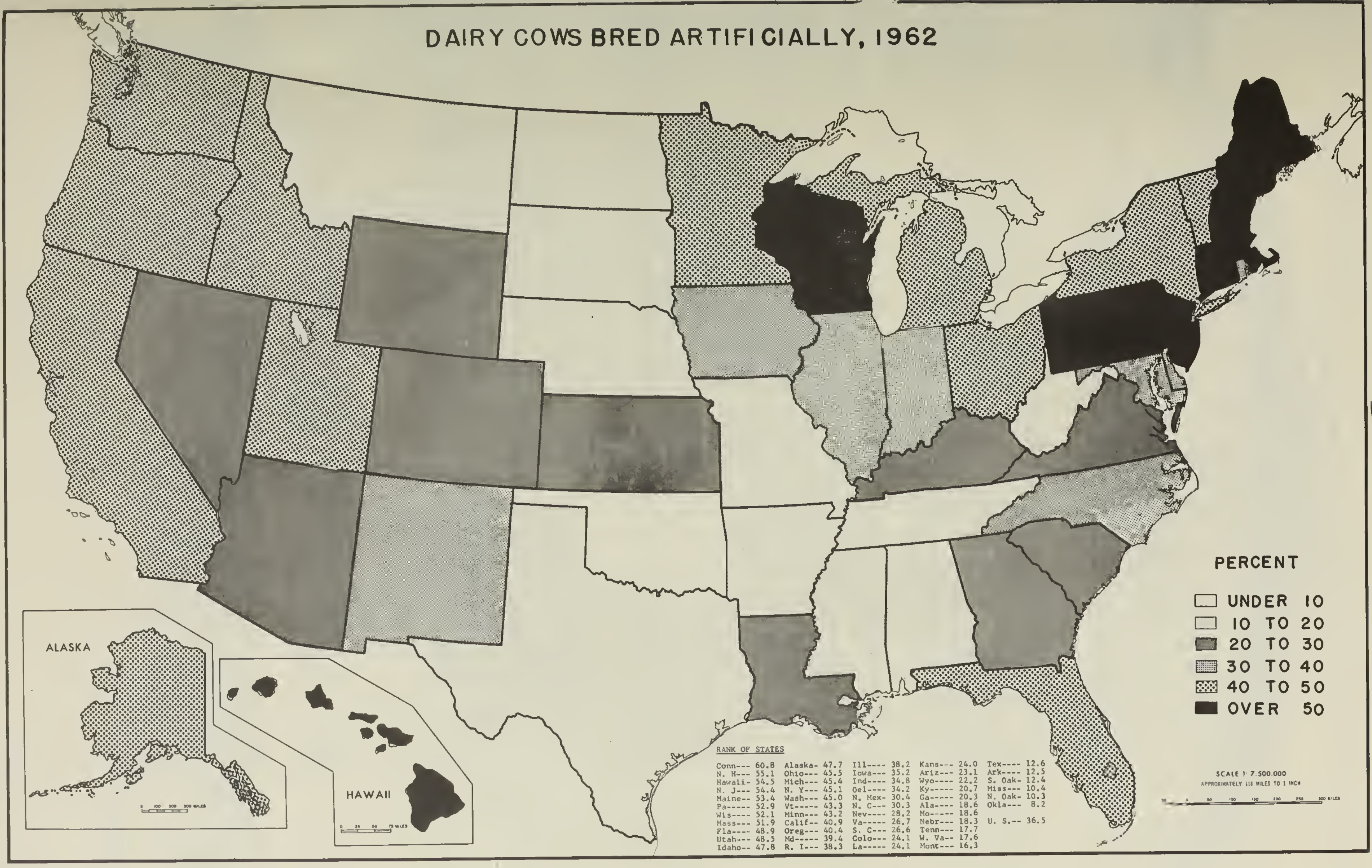
ARTIFICIAL-BREEDING ORGANIZATION BULL STUDS, JANUARY 1, 1963

State, Name, and Location of Studs	Number and breed of bulls used									Total cows bred 1962
	Ayrshire	Brown Swiss	Guernsey	Holstein	Jersey	Red Dane	Shorthorn	Beef	Total	
ALASKA										
Matanuska Valley Breeders Association, Palmer-------------	-	-	-	3	-	3	-	-	6	1,076
CALIFORNIA										
Adohr Farms Inseminating Service, P.O. Box 88, Camarillo--	-	-	14	12	-	-	-	-	26	9,417
Calif. Dairy Breeders, Inc., P.O. Box 188, Davis----------	-	-	8	14	9	-	-	6	37	55,640
Excelsior Breeding Service, 7401 Adams, Corona------------	-	2	1	9	-	-	-	-	12	23,702
Jessup Breeders, 11630 E. Artesia Blvd., Artesia----------	-	2	10	29	5	-	1	5	52	101,313
Pacific Breeders Coop., Inc., 1464 Middle Two Rock Road, Petaluma-----------------	-	-	6	9	6	-	-	1	22	27,366
COLORADO										
Colorado State University ABS, 809 City Park Ave., Fort Collins-------------	-	-	-	3	-	-	1	5	9	14,169
CONNECTICUT										
New England Selective Breeding Assn., Inc., Newton Road, Woodbridge---------------	3	6	13	21	11	-	-	5	59	136,705
HAWAII										
Haleakala Ranch Dairy Farm, Makawao, Maui-----------------	-	-	-	1	-	-	-	-	1	29
ILLINOIS										
Curtiss Breeding Service, Inc., Cary----------------------	3	5	23	81	15	-	3	49	179	936,194
Northern Illinois Breeding Coop., Rt. 1, Hampshire--------	-	10	13	35	-	-	5	-	63	106,298
Southern Illinois Breeding Association, Breese------------	-	2	6	16	6	-	4	13	47	75,551
INDIANA										
John A. Newman & Sons, R. R. 2, Box 21, Culver------------	-	-	-	6	-	-	-	-	6	687
IOWA										
Eastern Iowa Breeders, Hiawatha---------------------------	4	10	12	25	5	-	4	-	60	165,813
KANSAS										
Kansas ABS Unit, Anderson Hall, Kansas State University, Manhattan----------------	4	5	6	20	5	-	4	19	63	51,414
KENTUCKY										
Kentucky Artificial Breeding Assn., 1930 Herr Lane, Louisville 7-------------	-	5	9	13	10	-	-	10	47	108,753
LOUISIANA										
L.S.U. Dairy Improvement Center & La. ABC, Inc., Box 8907, LSU, Baton Rouge---------	-	-	5	8	6	-	-	7	26	65,792
MAINE										
Maine Breeding Cooperative, Inc., RFD #1, Augusta---------	1	1	13	14	12	-	3	3	47	55,044
MARYLAND										
Maryland-West Virginia Bull Stud, P.O. Box 555, Frederick-	5	4	9	18	5	-	-	8	49	96,183
MICHIGAN										
Michigan ABC, Inc., P. O. Box 511, East Lansing-----------	3	6	11	38	8	3	5	17	91	265,991
MINNESOTA										
Midwest Genes, Inc., Anoka 1/-----------------------------	-	12	22	76	9	-	11	13	143	464,055
Minnesota Valley Breeders Association, New Prague---------	3	6	15	49	5	-	4	18	100	323,984
MISSISSIPPI										
Mississippi ABC, State College----------------------------	-	-	4	6	9	-	-	6	25	29,005
NEW HAMPSHIRE										
New Hampshire-Vermont Breeding Association, Concord-------	3	-	10	12	11	-	-	-	36	64,985

1/ Formed May 1, 1962 from merger of Consolidated Breeders Cooperative, Iowa Breeders Cooperative, M. F. A. Dairy Breeders, and Nebraska ABA.

State, Name, and Location of Studs	Number and breed of bulls used									Total cows bred 1962
	Ayrshire	Brown Swiss	Guernsey	Holstein	Jersey	Red Dane	Shorthorn	Beef	Total	
NEW JERSEY										
New Jersey Cooperative Breeders Assn., Inc., Annandale----	-	2	10	20	3	-	-	4	39	51,142
NEW YORK										
New York ABC, Inc., Judd Falls Road, Ithaca---------------	13	14	24	98	25	-	-	11	185	554,234
NORTH CAROLINA										
N. C. Institutional Breeding Assn., Dept. Animal Science, N. C. State College, Raleigh-----------	-	-	-	13	-	-	-	-	13	1,362
OHIO										
Central Ohio Breeding Assn., 1224 Alton-Darby Road, Columbus 4-----------------------------	5	9	16	30	10	-	2	-	72	222,724
NOBA, Inc., P. O. Box 1015, Tiffin------------------------	-	2	12	28	16	-	1	11	70	229,562
OREGON										
Oregon Breeders Association, P. O. Box 48, Corvallis------	-	-	12	10	11	-	-	4	37	50,217
PENNSYLVANIA										
First Pa. Artificial Breeding Cooperative, Rt. 1, Lewisburg------------------------------	-	-	7	17	-	-	-	13	37	59,080
Lehigh Valley Coop. Farmers, Rt. 1, Allentown-------------	4	1	6	13	2	-	-	3	29	32,500
NEPA Artificial Breeding Cooperative, Tunkhannock---------	7	-	10	19	8	-	-	5	49	109,082
Southeastern Pa. ABC, Box 254, Lancaster------------------	3	1	12	19	4	-	-	7	46	156,562
Western Pa. ABC, Box 550, Clarion-------------------------	3	5	14	21	10	-	-	9	62	150,672
Zimmerman Dairy Farm, Lehighton---------------------------	-	-	-	4	-	-	-	-	4	2,000
PUERTO RICO										
Puerto Rico Artificial Breeding Assn., P.O.Box 958,Dorado-	-	4	-	11	-	-	-	2	17	17,776
TENNESSEE										
East Tennessee ABA, Route 10, Knoxville-------------------	2	2	7	11	10	-	3	7	42	40,600
Tennessee Artificial Breeding Association, Brentwood------	-	4	8	7	9	-	3	5	36	39,139
West Tennessee Artificial Breeding Assn., Yorkville-------	-	-	-	6	7	-	-	6	19	11,348
TEXAS										
Texas A & M Dairy Breeding Center, Dairy Science Dept., Texas A & M College, College Station---	-	-	-	2	-	-	-	4	6	728
UTAH										
Cache Valley Breeding Association, 1950 N. Main, Logan----	2	5	15	18	14	-	4	19	77	77,519
VIRGINIA										
Virginia ABA, Inc., P. O. Drawer 391, Rocky Mount---------	3	-	5	10	6	-	-	4	28	69,435
WASHINGTON										
W. De Jong's Supreme Bull Service, Rt. 1, Monroe----------	-	-	-	3	-	-	-	1	4	2,005
Evergreen Northwest Breeders, Inc., P. O. Box 197, Burlington-----------------------------	1	2	10	16	11	-	3	13	56	118,787
WISCONSIN										
American Breeders Service, Madison------------------------	3	6	19	56	13	-	3	43	143	1,506,365
Associated Breeding Service, Lena-------------------------	-	-	4	11	-	-	-	4	19	20,791
Badger Breeders Cooperative, Rt. 2, P.O. Box 469,Shawano--	-	6	19	26	7	-	-	9	67	405,688
East Central Breeders Assn. Coop.,P.O. Box 191, Waupun---	-	5	5	22	-	-	-	7	39	89,006
Piper Brothers Farms,Inc., Watertown----------------------	4	2	4	25	3	-	4	9	51	108,649
Tri-State Breeders Coop., Westby--------------------------	-	6	17	56	5	-	6	16	106	442,548
UNITED STATES---	79	152	446	1,090	311	6	74	401	2,559	7,748,687

DAIRY COWS BRED ARTIFICIALLY, 1962



RANK OF STATES

Conn---	60.8	Alaska-	47.7	Ill----	38.2	Kans---	24.0	Tex----	12.6
N. H---	55.1	Ohio---	45.5	Iowa---	35.2	Ariz---	23.1	Ark----	12.5
Hawaii-	54.5	Mich---	45.4	Ind----	34.8	Wyo----	22.2	S. Oak-	12.4
N. J---	54.4	N. Y---	45.1	Oel----	34.2	Ky-----	20.7	Miss---	10.4
Maine--	53.4	Wash---	45.0	N. Mex-	30.4	Ga-----	20.3	N. Oak-	10.3
Pa-----	52.9	Vt-----	43.3	N. C---	30.3	Ala----	18.6	Okla---	8.2
Wis----	52.1	Minn---	43.2	Nev----	28.2	Mo-----	18.6		
Mass---	51.9	Calif--	40.9	Va-----	26.7	Nebr---	18.3	U. S.--	36.5
Fla----	48.9	Oreg---	40.4	S. C---	26.6	Tenn---	17.7		
Utah---	48.5	Md-----	39.4	Colo---	24.1	W. Va--	17.6		
Idaho--	47.8	R. I---	38.3	La-----	24.1	Mont---	16.3		

EXTENSION SERVICE OFFICIALS WORKING WITH DAIRY BREEDING ORGANIZATIONS IN THE STATES

Ala------R. Sam Jones, Jr., Extension Service, Auburn University, Auburn.
Alaska---W. J. Sweetman, Dairy Husbandman, University of Alaska, Palmer.
Ariz-----W. R. Van Sant, Extension Service, University of Arizona, Tucson.
Ark------James B. Ragland, Extension Service, University of Arkansas, Little Rock.
Calif----C. L. Pelissier, Extension Service, University of California, Davis.
Colo-----D. C. Jordan, Extension Service, Colorado State University, Ft. Collins.
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Ind------N. J. Moeller, Dairy Extension Office, Purdue University, Lafayette.
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La-------H. W. Anderson, Agri. Extension Service, Louisiana State University, Baton Rouge 3.
Maine----Ralph Corbett, Extension Service, College of Agriculture, Orono.
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Mont-----E. J. Peace, Extension Service, Montana State College, Bozeman.
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N. Y-----Raymond Albrectsen, Extension Service, Cornell University, Ithaca.
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N. Dak---George Fisher, Extension Service, N. Dak. State University, Fargo.
Ohio-----C. D. McGrew, Extension Service, Ohio State University, Columbus 10.
Okla-----C. H. Burton, Extension Division, Oklahoma State University, Stillwater.
Oreg-----H. P. Ewalt, Extension Service, Oregon State University, Corvallis.
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P. R-----Cesar A. Calderon, Extension Service, University of Puerto Rico, Rio Piedras.
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S. C-----C. G. Cushman, Extension Service, Clemson Agricultural College, Clemson.
S. Dak---Ervin Kurtz,Extension Service, S. Dak. State College of Agriculture,Brookings
Tenn-----C. K. Chappell, Extension Service, P. O.Box 1071, University of Tennessee, Knoxville.
Tex------A. M. Meekma, Extension Service, Texas A & M College, College Station.
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6.23
3d

National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA OWNER SAMPLER WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-130
(Vol. 39, No. 4)

Dairy-Herd-Improvement Letter

April-May-June 1963

6,059 SIRES SUMMARIZED IN JANUARY 1963

In January 1963, 6,059 sires were summarized, 3,648 of which represented new sires that did not have five tested daughters in July 1962. Individual sire records were produced for 5,124 non-AI and 677 AI sires having 151,372 production tested daughters with herdmates. A total of 12,169 individual sire records were sent to the cooperating States. The performance of non-AI sires, AI sires, and the number of sires summarized is shown in Tables 1, 2, and 3, respectively.

Of the non-AI sires summarized, 46 percent maintained or increased milk yield and 48 percent maintained or increased fat yield. The corresponding values for AI sires were 48 and 57 percent, respectively. It is apparent that these sires, particularly those in AI, probably were selected more on the basis of percentage of fat or fat yield than for milk yield.

7,188,349 DHIA LACTATION RECORDS IN MASTER TAPE FILE

As of January 1963, the updated and edited master file included 7,188,349 lactation records. Of these, 5,896,904 records represent 2,484,116 cows and 300,438 sires while 1,291,445 records represent 930,207 cows which have no sire identification. The volume of the master file, by breed, is shown in Table 4.

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JUL 29 1963
UNIVERSITY OF ILLINOIS

RESEARCH NOTE

Genetic Improvement Resulting from AI

Artificial insemination (AI) has experienced dramatic growth in the U. S. since 1939. Since that time approximately 80 million cows have been bred by AI sires, the vast majority of which were dairy. In 1962 approximately 40 percent of cows of breeding age were bred by AI while the average number of cows bred per sire was 3,155. These statistics clearly emphasize the importance of AI bulls as a means of setting the pace for genetic progress. Consequently, it is important to recognize what genetic progress has been realized through AI in recent years.

The method of contemporary herdmate comparisons, as used in evaluating sires in DHIA, is not designed for and hence is not in itself effective in determining the rate of genetic progress in herds using AI. The herdmates in these comparisons often are daughters of other AI bulls. These sire evaluation procedures, and the resulting DHIA Sire Summary List, are designed to appraise individual sires so that their relative performance can be analyzed.

AI and non-AI contemporary herdmate comparisons have been used, however, by researchers in an effort to evaluate genetic progress resulting from AI. In this manner the production performance of AI and non-AI sired herdmates are compared in herds using both types of service. Two of the most recent and extensive studies (New York and Wisconsin) show genetic improvement has been realized in Holstein-Friesian DHIA herds in recent years.

In the New York study, the estimated superiority of AI progeny over non-AI herdmates was as follows:

Year	No. first-records made by AI progeny & herdmates	AI superiority Milk Lbs.	AI superiority Fat Lbs.
1951	2,944	262	10
1952	3,861	59	6
1953	5,608	11	3
1954	6,734	284	10
1955	6,843	331	11
1956	6,646	169	12
1957	5,057	194	8
1958	11,340	103	8
1959	8,793	357	18

These workers concluded that "the gain in genetic merit has been about one-half percent per year since 1953 until 1959, if it can be assumed that merit of non-AI progeny has remained constant."

In the Wisconsin study, where the Holstein-Friesian DHIA herds were grouped into three production levels, the estimated superiority of AI progeny over non-AI herdmates was as follows:

Level	No. available records	Yearly herd av. Milk Lbs.	Yearly herd av. Fat Lbs.	AI superiority Milk Lbs.	AI superiority Fat Lbs.
Low	25,990	9,159	328	259	14
Medium	27,604	10,681	386	294	13
High	28,311	12,091	445	228	13

The AI progeny in Guernsey DHIA herds were found to be superior to their non-AI herdmates by only 22 pounds of milk and 5 pounds of fat.

All research results are not in agreement as to the rate of genetic progress resulting from AI. It is possible that regions of the country differ in this regard. However, with the exception of the two mentioned above, most of the studies have been based on small numbers of comparisons and the differences reported could be the result of random fluctuations of the data. Nationwide, it appears that real genetic improvement in production has resulted from AI in Holstein DHIA herds. The lack of rapid improvement is attributed to (1) the relatively low heritability or selectability rate (25 percent) for milk and fat yield, (2) the low degree of reliability of within herd sire proofs, (3) emphasis on traits other than production and, (4) emphasis on percentage of fat test.

ERRATUM:

March 1963 Letter. In the second paragraph on page 1, the number of dairy bulls in service in 1962 should be 2,158 and not 3,158.

Table 1--Performance of Non-AI Sires Summarized in January 1963, as measured by the Production of Progeny and their Herdmates.

Breed	Total	Sires					Daughters			Herdmates		
		Milk Yield		Fat Yield		Daughters with Herdmates	Average Production					
		Maintained or increased	Decreased	Maintained or increased	Decreased		Milk	Test	Fat	Milk	Test	Fat
	No.	No.	No.	No.	No.	No.	Lbs.	%	Lbs.	Lbs.	%	Lbs.
Ayrshire	233	99	134	107	126	2,203	9,703	4.1	398	9,787	4.1	397
Guernsey	857	373	484	404	453	7,911	8,533	4.8	414	8,725	4.8	415
Holstein	3,159	1,533	1,626	1,550	1,609	35,723	12,580	3.7	460	12,598	3.7	461
Jersey	647	258	389	286	361	6,890	7,884	5.2	413	8,168	5.1	420
Brown Swiss	170	65	105	82	88	1,641	10,626	4.1	438	10,886	4.0	440
Milking Shorthorn	52	20	32	17	35	417	8,461	3.8	324	8,638	3.8	331
Red Dane	2	-	2	-	2	12	10,639	3.8	402	11,453	3.7	427
Red Poll	4	1	3	1	3	29	8,715	4.7	409	9,250	4.7	436
Overall	5,124	2,349	2,775	2,447	2,677	54,826	11,069	4.0	441	11,163	4.0	443

Table 2--Performance of AI Sires Summarized in January 1963, as measured by the Production of Progeny and their Herdmates.

Breed	Total	Sires					Daughters			Herdmates		
		Milk Yield		Fat Yield		Daughters with Herdmates	Average Production					
		Maintained or increased	Decreased	Maintained or increased	Decreased		Milk	Test	Fat	Milk	Test	Fat
	No.	No.	No.	No.	No.	No.	Lbs.	%	Lbs.	Lbs.	%	Lbs.
Ayrshire	28	13	15	16	12	2,107	9,717	4.1	409	9,882	4.1	402
Guernsey	101	40	61	53	48	4,483	8,756	4.8	423	8,896	4.7	421
Holstein	399	230	169	239	160	83,766	12,644	3.7	467	12,581	3.7	465
Jersey	90	18	72	36	54	3,562	8,008	5.2	416	8,451	5.0	424
Brown Swiss	48	18	30	25	23	2,543	10,619	4.1	440	10,812	4.1	441
Milking Shorthorn	10	7	3	7	3	79	9,321	3.8	355	8,884	3.8	339
Red Dane	1	1	-	1	-	6	10,462	4.1	428	10,408	4.0	421
Red Poll	-	-	-	-	-	-	-	-	-	-	-	-
Overall	677	327	350	377	300	96,546	11,139	4.0	448	11,187	4.0	447

Table 3--Number of Sire Records Summarized in January 1963, by State and Breed

State	Ayrshire	Guernsey	Holstein	Jersey	Br. Swiss	Shorthorn	Red Dane	Other	Red Poll	Total
Maine----------------	18	28	118	27	9					200
New Hampshire--------	29	12	114	32	4	2				193
Vermont--------------	45	28	229	80	19	2		1		404
Massachusetts--------	35	41	224	29	15	1				345
Rhode Island---------	10	4	50	3	1					68
Connecticut----------	29	63	206	24	16					338
New York-------------	69	118	841	95	40	4		1		1,168
New Jersey-----------	4	50	195	19	16					284
Pennsylvania---------	54	205	780	62	20	10		1		1,132
Ohio-----------------	13	59	252	58	28	4				414
Indiana--------------	15	68	225	49	27	7				391
Illinois-------------	14	54	327	43	38	10				486
Michigan-------------	13	66	511	54	26	4	3			677
Wisconsin------------	13	84	558	42	47	16	1			761
Minnesota------------	26	47	312	33	33	9				460
Iowa-----------------	32	46	303	56	51	19				507
Missouri-------------	2	22	103	34	8	6		1		176
North Dakota---------		7	58	1	13	2				81
South Dakota---------	2		51	6	4					63
Nebraska-------------	1	18	115	5	16	6				161
Kansas---------------	25	35	176	23	16	7				282
Delaware-------------	11	8	62	6	3					90
Maryland-------------	19	70	278	23	19	1				410
Virginia-------------	14	61	257	19	8					359
West Virginia--------	12	13	100	17	2					144
North Carolina-------	10	56	179	31	11					287
South Carolina-------	3	54	91	28	5					181
Georgia--------------	14	22	99	23	8					166
Florida--------------	7	55	71	47	5					185
Kentucky-------------	2	11	97	27	6					143
Tennessee------------		35	84	66	4	1				190
Alabama--------------	6	20	73	48	2					149
Mississippi----------		18	21	39	3					81
Arkansas-------------	3	9	26	8	2	4				52
Louisiana------------	2	22	19	7	2					52
Oklahoma-------------	8	16	67	19	9	3				122
Texas----------------	5	9	101	58	18			1		192
Montana--------------	2	2	10	1	9	1				25
Idaho----------------	1	11	49	17	6	2				86
Wyoming--------------		2	13							15
Colorado-------------	2	19	53	10	16					100
New Mexico-----------		11	12	14						37
Arizona--------------		13	36	8	1					58
Utah-----------------	1	7	74	14						96
Nevada---------------		3	3	8						14
Washington-----------	9	41	72	18	8	2				150
Oregon---------------	5	26	40	38	17					126
California-----------		22	25	12	1					60
Puerto Rico----------			8							8
Hawaii---------------										
Alaska---------------										
Total----------------	266	989	3,737	762	228	68	4	5		12,169 1/ 6,059 2/

1/ Represents the number of individual sire records sent to States.
2/ Represents the number of sires summarized.

Table 4--Volume of DHIA Master File Effective January 1963.

Breed	Sires	Cows	Lactations
	(Number)	(Number)	(Number)
Ayrshire	16,775	114,044	284,538
Guernsey	61,086	465,755	1,088,534
Holstein	155,527	1,467,147	3,468,838
Jersey	45,185	325,646	788,201
Brown Swiss	13,740	80,282	200,861
Milking Shorthorn	1/ 8,125	31,242	65,932
Red Dane			
Red Poll			
No Sire Identification		930,207	1,291,445
Total	300,438	3,414,323	7,188,349

1/ Estimated.

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
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STANDARD DHIA
OWNER SAMPLER
WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter
ARS-44-134
(Vol. 39, No. 6)

September-October 1963

DHIA COWS AVERAGE 11,286 POUNDS OF MILK

In 1962-63, 47.3 DHIA cows per herd produced 11,286 pounds of milk and 434 pounds of butterfat on a cow-year average basis. This represents an increase of 0.6 of a cow per herd, 254 pounds of milk and 8 pounds of butterfat per cow over 1961-62.

The importance of DHIA recordkeeping continues to be increasingly evident. In 1962, DHIA cows were 60 percent superior in milk yield to non-DHIA cows and in the amount of 4,136 pounds. Since 1930, DHIA cows have increased in production by 3,390 pounds of milk (106 pounds per year) as compared to only 2,461 pounds (77 pounds per year) for non-DHIA cows. This rate of improvement has been 38 percent more rapid among DHIA cows than among non-DHIA cows. These trends are evident even though the slow but steady growth of DHIA has resulted in a more widespread participation and hence a less selective program in recent years. Production averages of DHIA and non-DHIA cows are shown in Table 1.

While such statistics as these provide no assurance that enrollment in DHIA will automatically result in dramatic production increases, such statistics provide a helpful tool for encouraging more dairymen to participate in DHIA and related recordkeeping programs.

Issued November 1963

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DHIA HERD SUMMARIES, 1962-63

Summaries of DHIA statistics for 1962-63 are shown in Tables 2 through 8. Table 2 gives the cow-year average production of DHIA cows by State, including cows for which only milk and fat production were reported or used. Other State and national production averages were derived from 935,149 cows in the 22,653 herds from which complete herd data were reported and are on a cow-year basis in Table 3 and on a herd basis in Tables 4 through 6.

A summary of the cow-year averages by State is shown in Table 3. The value for income over feed cost for each State was derived by subtracting average feed cost from average value of product.

Level of feeding, other than concentrates, feeding index, and rate of forage feeding were not included in any tables because values for succulent and dry forage quantity were reported by several States in tons rather than in hundredweights. Feed costs, however, were considered to be reliable estimates.

Averages for number of workers, milk per worker, and income over feed cost per worker were not included since barn and field labor were not adequately differentiated in the reports.

Regional differences, especially as associated with fluctuating milk prices, feeding regimes, costs, and breed distribution, create serious problems in interpreting production and efficiency summaries such as these. This is especially true for income over feed cost estimates which vary with value of product and feed cost and thus tend to be regionally influenced. The influence of breed of herd is also an important factor to be considered when evaluating profitable levels of production. If all breeds were combined, for example, in stratifications according to herd average milk yield, herds averaging 7,000 pounds of milk would consist largely of Guernseys and Jerseys, and would represent milk prices and feed costs averaging \$5.04/cwt and \$161, respectively. The corresponding values for herds averaging 14,000 pounds of milk would be \$4.21 and \$271. Therefore, in stratifications involving milk yield, breeds were not combined as in the past and are listed separately in Tables 7 and 8.

In 1962-63, DHIA cows were, on the average, in milk 84 percent of the year, fed 3,900 pounds of concentrates and produced a product valued at $495 from feed costing $218 while realizing an estimated income over feed cost of $277. The corresponding values from 1961-62 were 84 percent, 3,600 pounds, $502, $207, and $295.

The more recent value of product estimate of $495 per cow in DHIA corresponds to an average milk price of $4.53/cwt. The all-U. S. average milk price in 1962 was $4.54/cwt for fluid milk and $4.11/cwt for all milk. During the past two years in DHIA, value of product has decreased approximately $7.00 per cow; estimated feed cost has increased $11.00 per cow. This trend, which is also shown by data from the USDA Statistical Reporting Service, continues to emphasize the need for more efficient dairy operations.

Summaries based on stratifications by fat level, concentrate level, and herd size are shown in Tables 4 through 6. Increased levels of concentrate feeding appeared to be associated with increases in production, feed cost, and income over feed cost. It should be recognized, however, that these increases in production and estimated income over feed cost probably are not solely attributed to level of concentrate feeding.

Feed cost, value of product, and income over feed cost values were not included in the results shown in Table 6 since they appeared to be confounded by the differences in markets involved in each herd size level.

Stratifications involving herd average milk yield by breed are shown in Tables 7 and 8. The mixed breed group shown in Table 7 represents 1,789 herds reported as consisting of either more than one breed or uncertain breed identity. As indicated previously, breeds were tabulated separately in order to minimize the complicating effects of milk prices and feed costs as related to breed in addition to breed differences in milk yield. Such tabulations should be most effective in establishing guidelines for production efficiency within breed rather than between breeds. On the basis of the long established thumb rule that profitable production can be realized only if income more than doubles feed cost, milk production levels below which profit will not be realized under average U. S. conditions are estimated as follows:

Breed	Minimum Milk Level at which Income at Least Doubles Feed Cost (Lbs.)
Ayrshire	7,000
Guernsey	6,000
Holstein	8,000
Jersey	5,000
Brown Swiss	8,000
Milking Shorthorn	8,000

Only 1.4 percent of the herds were producing below the above levels for the respective breeds. A total of 4,238 herds or 20 percent reported income over feed cost at less than $200 per cow while 30 percent reported values at $300 or more per cow. Overall milk yield levels and breeds, estimated income over feed cost increased approximately $29 per cow for each 1,000 pounds increase in milk production. As the milk yield of herds doubled or increased by a 2.0, income over feed cost increased by a factor of 2.3.

It is important to realize that the applicability of these DHIA herd statistics to individual herds will have the greatest meaning where local feed and milk markets are reasonably consistent with U. S. averages. Certainly, herds of the same breed and having similar levels of milk yield may differ considerably in production efficiency if a wide range exists in milk price, feeding systems and costs, and labor and other costs.

6,840 SIRES SUMMARIZED IN JULY 1963

During the six months prior to July 1963, a total of 597,597 production records were received and processed. Of this number 95.1 percent survived editing procedures and the remaining 568,227 were added to master files not totaling 7,686,950 records made by 3,709,797 cows. Individual sire records were produced for 6,840 sires, 80 percent of which were non-AI sires. A total of 16,718 sire records were sent to the cooperating States. Fifty-two percent of the sires summarized were identified by name.

Forty-eight percent of the AI sires summarized maintained or increased milk yield and 54 percent maintained or increased fat yield. The corresponding values for non-AI sires were 45 and 47 percent, respectively. These results continue to indicate that, in general, sires are selected more on the basis of percentage of fat or fat yield than for milk yield. Overall breeds, the progeny of summarized AI and non-AI bulls were slightly inferior to their herdmates in the amount of 68 and 118 pounds of milk, respectively. However, such averages or differences are not entirely conclusive in appraising the effectiveness of current and recently used methods of sire selection or AI versus non-AI performance since (1) they are derived on a sire basis and hence do not reflect the more extensive use of genetically superior bulls, (2) herdmates include both AI and non-AI progeny as well as progeny of currently summarized bulls, and (3) herdmates are generally more highly selected than the bull's progeny. These results clearly indicate, however, that slightly less than one-half of the bulls summarized maintained or increased milk yield. The results of the July 1963 Sire Summaries are shown in Tables 9, 10, and 11.

TABLE 1--SUMMARY OF DHIA, AND NON-DHIA COWS, BY YEAR, UNITED STATES

	Standard DHIA						All Cows		Non-DHIA	Superiority
Year	Cows	Percent of all Cows	Cows Per Herd	Milk	Fat	Fat	Number	Cow-year Average Milk	Cow-year Average Milk	of DHIA Cow-year Av. Milk
	No.			Lbs.	Lbs.	%	(Thousands)	Lbs.	Lbs.	Lbs.
1906	239		7.7	5,300	215	4.06	17.592			
1920	203,472	1.0	17.0	6,175	247	4.00	20,704			
1930	507,549	2.3	18.2	7,642	303	3.96	22,218	4,508	4,435	3,207
1940	676,141	2.9	24.2	8,133	331	4.07	23,671	4,622	4,519	3,614
1950	1,088,872	5.0	27.2	9,172	370	4.03	21,944	5,314	5,113	4,059
1960	1,746,752	10.0	42.3	2/10,561	2/409	2/3.87	17,543	7,000	6,606	3,955
1961	1,867,469	10.8	43.9	10,796	418	3.87	17,367	7,223	6,793	4,003
1962	1,958,355	11.5	46.6	11,032	426	3.86	17,086	7,370	6,896	4,136
1963	2,006,534	1/11.9	47.8	11,286	434	3.85	1/16,886			

1/ Estimated.
2/ Averaged from 1959 and 1961 since date for collecting data for summary changed in 1961.

TABLE 2--SUMMARY OF THE 1962-63 DHIA COW-YEAR AVERAGES, BY STATES 1/

State		Herd Records	Cow-years	Cow-year Milk	Average Test	Production Fat
Code	Name	Number	Number	Pounds	%	Pounds
11	Maine	528	20,032	11,209	4.0	449
12	New Hampshire	312	12,518	10,937	4.1	447
13	Vermont	931	41,179	10,454	4.0	423
14	Massachusetts	501	21,450	11,568	4.0	461
15	Rhode Island	33	1,578	11,635	3.9	448
16	Connecticut	451	21,640	11,882	3.9	469
21	New York	2,963	131,466	12,260	3.7	453
22	New Jersey	511	26,730	11,459	3.8	440
23	Pennsylvania	4,384	151,185	11,203	3.9	438
31	Ohio	1,922	66,932	11,497	3.8	439
32	Indiana	978	33,829	11,189	3.9	440
33	Illinois	1,504	54,126	11,136	3.9	431
34	Michigan	1,859	66,799	11,630	3.8	438
35	Wisconsin	2,758	105,781	11,341	3.8	431
41	Minnesota	3,227	97,937	11,117	3.7	416
42	Iowa	1,499	47,602	10,709	3.8	408
43	Missouri	494	20,256	10,324	3.9	403
45	North Dakota	169	5,450	10,647	3.7	396
46	South Dakota	168	5,250	10,212	3.7	373
47	Nebraska	263	10,947	10,617	3.8	405
48	Kansas	649	26,248	10,870	3.8	411
50	Delaware	107	4,312	10,968	3.9	423
51	Maryland	702	35,626	10,730	3.9	420
52	Virginia	1,086	59,578	10,847	3.9	419
54	West Virginia	222	8,744	9,674	3.9	373
55	North Carolina	635	31,756	10,410	3.8	398
56	South Carolina	205	15,781	9,292	4.0	369
57	Georgia	267	18,105	9,525	3.9	373
58	Florida	95	15,775	8,513	4.2	355
61	Kentucky	344	13,336	10,146	3.8	390
63	Tennessee	439	21,397	8,984	4.1	368
64	Alabama	238	18,143	8,329	4.0	330
65	Mississippi	130	7,782	7,526	4.2	314
71	Arkansas	65	2,976	9,017	3.7	338
72	Louisiana	42	2,799	8,052	4.0	324
73	Oklahoma	125	6,462	10,275	3.7	385
74	Texas	297	21,095	9,871	3.8	374
81	Montana	74	3,271	11,161	3.7	418
82	Idaho	471	17,209	10,775	4.0	426
83	Wyoming	27	902	10,906	3.6	394
84	Colorado	202	11,681	11,256	3.8	426
85	New Mexico	34	3,892	10,934	3.8	418
86	Arizona	151	18,529	12,141	3.7	446
87	Utah	374	15,269	12,328	3.7	457
88	Nevada	51	3,700	11,725	3.7	434
91	Washington	722	37,905	11,723	4.0	465
92	Oregon	280	15,247	10,303	4.2	437
93	California	1,881	292,949	12,443	3.8	478
94	Puerto Rico	6	1,593	7,184	3.4	246
95	Hawaii	1	21	6,377	3.8	242
Total or average		35,378	1,674,803	11,286	3.8	434

1/ Includes all production data reported.

TABLE 3--SUMMARY OF THE 1962-63 DAIRY-HERD-IMPROVEMENT ASSOCIATION RECORDS, BY STATES 1/, 2/

State		Herds	Body	Cow-years	Milk	Test	Fat	Days in Milk	Concen-trates Fed	Value of Product	Cost of Concen-trates	Feed Cost	Income Over F. Cost	Feed Cost Per Cwt Milk
Code	Name	No.	Cwt.	No.	Lbs.	%	Lbs.	%	Cwt.	$	$	$	$	$
11	Maine-------------:	522	11	19,908	11,212	4.0	450	85	42	576	155	262	314	2.33
12	New Hampshire-----:	299	11	12,004	10,933	4.1	446	84	40	579	146	275	304	2.51
13	Vermont-----------:	916	11	40,511	10,464	4.0	423	84	35	505	130	239	266	2.29
14	Massachusetts-----:	478	11	20,301	11,636	4.0	461	84	46	668	170	316	352	2.72
15	Rhode Island------:	31	13	1,492	11,606	3.9	447	84	45	750	166	371	379	3.20
16	Connecticut-------:	405	12	19,465	11,961	3.9	472	84	48	652	179	319	333	2.67
21	New York----------:	2,960	12	131,332	12,259	3.7	453	84	41	541	138	258	283	2.11
22	New Jersey--------:	403	12	21,095	11,444	3.8	440	84	39	606	132	284	322	2.48
31	Ohio--------------:	1,083	12	35,800	11,322	3.9	438	85	41	475	101	220	255	1.94
32	Indiana-----------:	944	12	32,061	11,077	4.0	438	85	38	460	90	200	260	1.80
33	Illinois----------:	1,479	12	53,299	11,145	3.9	432	85	38	436	84	174	262	1.56
34	Michigan----------:	1,842	12	65,905	11,639	3.8	438	86	40	484	84	183	301	1.57
41	Minnesota---------:	3,063	12	92,979	11,157	3.7	417	85	38	398	72	150	248	1.35
42	Iowa--------------:	1,467	12	46,341	10,739	3.8	409	84	41	386	89	159	227	1.48
43	Missouri----------:	455	12	18,780	10,347	3.9	405	85	37	427	95	188	239	1.82
45	North Dakota------:	163	13	4,920	10,583	3.8	397	83	35	386	68	137	249	1.29
46	South Dakota------:	155	12	4,891	10,210	3.6	372	83	38	405	77	163	242	1.59
47	Nebraska----------:	256	12	10,496	10,662	3.8	407	85	39	420	98	183	237	1.72
48	Kansas------------:	620	12	25,115	10,951	3.8	413	85	41	441	104	191	250	1.74
50	Delaware----------:	105	11	4,236	10,990	3.9	424	84	38	537	116	265	272	2.41
51	Maryland----------:	529	11	25,948	10,843	3.9	428	84	40	524	123	266	258	2.45
52	Virginia----------:	1,068	12	58,521	10,855	3.9	419	84	39	565	127	259	306	2.38
54	West Virginia-----:	220	12	8,682	9,681	3.9	373	83	33	461	105	222	239	2.29
55	North Carolina----:	627	11	31,355	10,385	3.8	397	84	40	582	129	269	313	2.59
56	South Carolina----:	203	11	15,701	9,270	4.0	368	83	37	530	115	218	312	2.35
57	Georgia-----------:	248	11	16,298	9,603	3.9	377	84	38	578	120	220	358	2.29
58	Florida-----------:	76	10	12,437	8,641	4.2	361	84	47	586	141	227	359	2.62
61	Kentucky----------:	311	11	11,723	10,035	3.8	386	83	34	423	95	187	236	1.86
63	Tennessee---------:	433	11	21,148	8,990	4.1	368	84	33	445	95	193	252	2.15
64	Alabama-----------:	205	10	15,757	8,378	4.0	335	82	40	466	121	201	265	2.39
65	Mississippi-------:	122	10	7,271	7,542	4.2	314	81	33	384	99	163	221	2.15
71	Arkansas----------:	65	11	2,976	9,017	3.7	338	83	36	386	103	186	200	2.06
72	Louisiana---------:	35	10	2,447	8,153	4.0	328	82	35	475	107	170	305	2.08
73	Oklahoma----------:	115	11	5,986	10,310	3.8	387	83	38	465	99	195	270	1.89
74	Texas-------------:	280	11	19,866	9,898	3.8	375	82	42	481	121	223	258	2.26
81	Montana-----------:	43	13	1,731	11,052	3.7	405	86	31	460	77	200	260	1.81
82	Idaho-------------:	400	11	14,128	10,798	4.0	429	85	26	425	71	193	232	1.78
83	Wyoming-----------:	1	13	32	10,968	3.5	385	86	29	442	74	198	244	1.81
92	Oregon------------:	21	11	980	9,939	4.3	429	85	29	491	90	203	288	2.05
94	Puerto Rico-------:	5	12	1,232	7,581	3.4	258	76	36	582	127	208	374	2.75
U. S. Average---------:		22,653	12	935,149	10,938	3.8	420	84	39	495	111	218	277	1.99
Including Incomplete--:		35,378		1,674,803	11,286	3.8	434							

1/ Cow-year basis, based on complete individual herd reports only.
2/ Complete feed and cost data not tabulated for the following States: Pennsylvania, Wisconsin, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, California, Hawaii.

TABLE 4--SUMMARY OF 1962-63 DHIA YEARLY HERD AVERAGES, STRATIFIED BY POUNDS OF BUTTERFAT 1/

Grouping 50 Pound	Herds	Body	Cow-years	Milk	Test	Fat	Days in Milk	Concen- trates Fed	Value of Product	Cost of Concen- trates	Feed Cost	Income Over F. Cost	Feed Cost Per Cwt Milk
	No.	Cwt.	No.	Lbs.	%	Lbs.	%	Cwt.	$	$	$	$	$
125-174	11	10	52.3	3,944	4.0	159	61	18	186	47	110	76	2.79
175-224	60	10	58.2	5,172	4.0	205	73	22	263	65	133	130	2.57
225-274	386	11	47.0	6,645	3.9	257	77	28	301	76	154	147	2.33
275-324	1,398	11	46.8	7,847	3.9	304	81	31	352	83	169	183	2.17
325-374	3,577	11	42.6	9,085	3.9	353	83	34	397	90	183	214	2.03
375-424	5,919	12	41.0	10,385	3.9	401	84	37	448	99	198	250	1.92
425-474	6,011	12	40.4	11,692	3.8	448	85	41	504	111	217	287	1.87
475-524	3,564	12	39.9	12,985	3.8	496	86	45	566	126	240	326	1.86
525-574	1,400	12	39.2	14,182	3.8	544	86	49	631	144	266	365	1.89
575-624	280	12	39.2	15,281	3.9	592	87	52	699	160	290	409	1.90
625-674	42	13	40.2	16,437	3.9	641	88	56	756	173	299	457	1.82
675-724	3	12	30.3	17,006	4.0	687	89	64	936	230	386	550	2.26
725-774	2	14	23.4	18,267	4.0	731	91	66	827	184	285	542	1.54
U.S.Av. 1/	22,653	12	41.3	11,006	3.9	424	84	39	479	107	210	269	1.94

1/ All groupings and the U. S. average are on a herd basis.

TABLE 5--SUMMARY OF 1962-63 DHIA YEARLY HERD AVERAGES, STRATIFIED BY CONCENTRATES FED 1/

Grouping 100 Pound	Herds	Body	Cow-years	Milk	Test	Fat	Days in Milk	Concen- trates Fed	Value of Product	Cost of Concen- trates	Feed Cost	Income Over F. Cost	Feed Cost Per Cwt Milk
	No.	Cwt.	No.	Lbs.	%	Lbs.	%	Cwt.	$	$	$	$	$
05-14	81	11	33.1	7,925	4.0	315	80	12	312	34	131	181	1.74
15-24	1,288	11	41.0	8,532	4.0	345	82	21	373	61	155	218	1.87
25-34	6,534	11	41.6	9,840	4.0	391	84	30	433	82	180	253	1.89
35-44	8,405	12	41.2	11,205	3.8	430	85	39	485	107	211	274	1.92
45-54	4,584	12	40.9	12,273	3.7	459	85	49	530	134	241	289	1.99
55-64	1,400	12	41.6	12,952	3.7	481	85	58	569	163	270	299	2.11
65-74	287	12	43.1	13,279	3.7	493	85	68	603	191	297	306	2.26
75-84	65	12	52.0	13,822	3.8	520	86	78	661	225	332	329	2.43
85-Up	9	12	54.3	13,427	3.7	495	87	88	648	264	357	291	2.63
U.S.Av. 1/	22,653	12	41.3	11,006	3.9	424	84	39	479	107	210	269	1.94

1/ All groupings and the U. S. average are on a herd basis.

TABLE 6--SUMMARY OF 1962-63 DHIA YEARLY HERD AVERAGES, STRATIFIED BY SIZE OF HERD [1/]

Grouping 10 Cow	Herds	Body	Cow-years	Milk	Test	Fat	Days in Milk	Concentrates Fed
	No.	Cwt.	No.	Lbs.	%	Lbs.	%	Cwt.
Under 10	174	11	6.9	10,368	4.1	428	84	40
10-19	2,171	12	16.3	10,747	3.9	422	85	39
20-29	5,875	12	25.4	11,070	3.8	426	85	39
30-39	5,564	12	34.7	11,111	3.8	426	84	39
40-49	3,606	12	44.5	11,110	3.8	426	84	39
50-59	2,047	12	54.5	11,080	3.8	424	84	39
60-69	1,148	12	64.5	11,004	3.8	421	84	40
70-79	699	11	74.8	10,840	3.9	418	84	39
80-89	415	12	84.6	10,859	3.8	414	84	39
90-99	273	12	94.6	10,615	3.8	406	84	39
100-Up	681	11	142.8	10,246	3.9	397	83	39
U.S.Av.	22,653	12	41.3	11,006	3.9	424	84	39

[1/] All values are herd averages, except fat percent which is calculated on each average production value.

TABLE 7--SUMMARY OF 1962-63 DHIA YEARLY HERD AVERAGES, STRATIFIED BY MILK YIELD AND GROUPED BY BREED

MILKING SHORTHORN

Grouping 1000 Pound	Herds	Cow-years	Milk	Concentrates	Value of Product	Cost of Concentrates	Feed Cost	Income Over Feed Cost
	No.	No.	Lbs	Cwt.	$	$	$	$
Under 5,500	2	27.1	4,941	15	209	42	134	76
55-64	11	20.0	6,155	26	189	54	118	71
65-74	28	25.4	7,022	30	258	68	137	121
75-84	42	23.2	8,031	29	309	72	155	154
85-94	31	23.5	8,892	31	328	75	156	172
95-104	9	21.9	9,763	28	393	68	154	239
105-114	5	29.6	10,954	38	435	94	186	249
Over 11,400	2	32.7	12,041	38	459	93	190	269
Average	130	23.8	8,107	30	304	71	150	154

MIXED BREED

Grouping 1000 Pound	Herds	Cow-years	Milk	Concentrates	Value of Product	Cost of Concentrates	Feed Cost	Income Over Feed Cost
Under 5,500	20	60.5	4,839	26	266	72	128	138
55-64	57	62.0	6,099	28	310	79	152	158
65-74	170	61.5	7,053	30	369	87	163	206
75-84	263	52.7	8,054	32	407	94	182	225
85-94	370	50.1	8,998	35	443	101	196	247
95-104	324	58.6	9,984	37	491	109	212	279
105-114	303	44.4	10,966	40	513	115	222	291
115-124	164	47.3	11,916	43	556	127	238	318
125-134	80	48.7	12,903	45	597	132	248	349
135-144	27	38.3	13,935	49	653	158	280	373
Over 14,400	11	43.8	14,978	51	630	142	265	365
Average	1,789	52.1	9,601	36	467	106	204	263

TABLE 8--SUMMARY OF 1962-63 DHIA YEARLY HERD AVERAGES, STRATIFIED BY MILK YIELD AND GROUPED BY BREED

Grouping 1000 Pound	Herds No.	Cow-years No.	Milk Lbs.	Concentrates Cwt.	Value of Product $	Cost of Concentrates $	Feed Cost $	Income Over Feed Cost $
AYRSHIRE								
Under 7,500	16	39.2	6,865	29	304	79	149	155
75-84	65	31.7	8,097	30	356	88	171	185
85-94	125	40.3	9,013	33	419	100	194	225
95-104	126	36.8	9,960	38	474	122	224	250
105-114	91	38.7	10,957	40	509	122	232	277
115-124	23	44.3	11,957	43	577	141	258	319
Over 12,400	17	38.1	13,425	49	627	160	276	351
Average	463	37.9	9,758	36	454	112	211	243
GUERNSEY								
Under 5,500	19	52.6	5,058	22	277	67	143	134
55-64	87	41.4	6,105	27	322	73	152	170
65-74	281	42.8	7,096	29	365	79	165	200
75-84	532	38.6	8,031	32	403	86	174	229
85-94	591	39.9	8,975	35	464	99	195	269
95-104	340	37.1	9,942	39	503	112	208	295
105-114	128	41.2	10,916	42	565	127	234	331
115-124	35	35.8	11,959	45	607	138	241	366
Over 12,400	13	39.5	13,248	46	652	160	287	365
Average	2,026	39.7	8,670	34	443	96	189	254
HOLSTEIN								
Under 6,500	43	52.9	5,833	23	280	67	148	132
65-74	160	45.3	7,083	27	310	75	159	151
75-84	417	45.2	8,082	30	349	81	173	176
85-94	1,036	43.5	9,060	33	383	88	182	201
95-104	1,941	41.5	10,042	36	419	93	192	227
105-114	3,059	40.6	11,011	39	455	100	203	252
115-124	3,569	40.5	11,997	41	497	109	215	282
125-134	2,967	40.5	12,978	44	542	120	233	309
135-144	1,796	40.1	13,932	47	587	132	248	339
145-154	804	39.9	14,907	50	637	147	271	366
155-164	244	38.6	15,865	53	685	159	284	401
Over 16,400	69	35.2	17,027	56	753	173	305	448
Average	16,105	40.9	11,840	41	495	110	217	278
JERSEY								
Under 5,500	49	38.9	4,892	23	249	63	121	128
55-64	139	44.1	6,093	27	320	76	148	172
65-74	379	42.7	7,025	30	374	85	161	213
75-84	502	40.8	7,985	34	418	96	175	243
85-94	315	41.8	8,926	36	483	112	199	284
95-104	105	43.8	9,950	41	550	137	234	316
105-114	31	40.7	10,884	42	557	138	239	318
Over 11,400	17	39.0	12,091	46	588	153	261	327
Average	1,537	41.9	7,910	33	420	98	179	241
BROWN SWISS								
Under 7,500	21	27.2	6,782	29	275	70	147	128
75-84	54	26.1	8,064	32	315	73	151	164
85-94	101	29.6	8,982	34	369	80	168	201
95-104	159	29.6	9,984	37	409	91	184	225
105-114	128	30.1	10,981	42	462	104	206	256
115-124	83	29.3	11,977	44	509	115	221	288
125-134	33	33.3	12,918	46	558	125	236	322
135-144	9	28.7	13,827	52	638	157	302	336
Average	588	29.4	10,243	39	426	96	191	235

TABLE 9--PERFORMANCE OF AI SIRES SUMMARIZED IN JULY 1963, AS MEASURED BY THE PRODUCTION OF PROGENY AND THEIR HERDMATES

	Sires				Daughters Average Production			Herdmates Average Production		
Breed	Total	Milk Yield Maintained or increased	Fat Yield Maintained or increased	Daughters with Herdmates	Milk	Test	Fat	Milk	Test	Fat
	No.	%	%	No.	Lbs.	%	Lbs.	Lbs.	%	Lbs.
Ayrshire	47	51	60	2,561	10,072	4.1	411	9,914	4.1	402
Guernsey	255	45	53	19,706	8,644	4.8	415	8,707	4.8	416
Holstein	688	48	53	143,680	12,835	3.7	473	12,960	3.7	475
Jersey	196	52	56	13,441	8,311	5.2	430	8,300	5.2	430
Brown Swiss	80	49	52	4,478	11,048	4.1	453	10,951	4.1	447
Milking Shorthorn	18	50	52	120	8,719	3.8	329	8,849	3.8	335
Red Poll	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Overall	1,284	48	54	183,986	11,042	4.1	449	11,110	4.0	450

TABLE 10--PERFORMANCE OF NON-AI SIRES SUMMARIZED IN JULY 1963, AS MEASURED BY THE PRODUCTION OF PROGENY AND THEIR HERDMATES

	Sires				Daughters Average Production			Herdmates Average Production		
Breed	Total	Milk Yield Maintained or increased	Fat Yield Maintained or increased	Daughters with Herdmates	Milk	Test	Fat	Milk	Test	Fat
	No.	%	%	No.	Lbs.	%	Lbs.	Lbs.	%	Lbs.
Ayrshire	190	44	44	2,003	9,610	4.1	390	9,741	4.0	392
Guernsey	1,065	44	49	12,847	8,803	4.8	426	8,897	4.8	427
Holstein	2,968	44	47	34,901	12,769	3.7	467	12,910	3.6	471
Jersey	741	45	46	8,862	8,187	5.2	429	8,309	5.2	433
Brown Swiss	200	52	59	2,161	10,999	4.1	451	10,906	4.1	445
Milking Shorthorn	60	45	48	575	8,581	3.8	330	8,632	3.8	328
Red Poll	1	-	-	5	7,872	4.0	317	7,415	4.1	303
Other	2	-	-	10	11,898	4.2	505	10,344	4.6	475
Overall	5,227	45	47	61,364	11,079	4.0	448	11,197	4.0	451

TABLE 11--NUMBER OF SIRE RECORDS SUMMARIZED IN JULY 1963, BY STATE, BY BREED

State	Ayrshire	Guernsey	Holstein	Jersey	Br. Swiss	Shorthorn	Red Dane	Other	Red Poll	Total
	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number
Maine----------------	15	50	140	44	11	4				264
New Hampshire--------	37	40	130	44	5	4				260
Vermont--------------	35	61	256	116	23	3				294
Massachusetts--------	34	87	245	70	24	2				462
Rhode Island---------	7	15	67	9	2					100
Connecticut----------	27	124	243	41	27					462
New York-------------	77	175	888	163	60	3				1,366
New Jersey-----------	3	104	200	35	24					366
Pennsylvania---------	55	317	703	102	45	7				1,229
Ohio-----------------	19	133	318	162	51	3				686
Indiana--------------	11	140	301	88	49	10				599
Illinois-------------	26	149	362	59	67	12				675
Michigan-------------	6	97	365	65	35	6				574
Wisconsin------------	16	192	772	81	82	17			1	1,161
Minnesota------------	26	112	427	62	50	11				688
Iowa-----------------	30	92	401	83	74	27				707
Missouri-------------	1	65	109	50	9	5				239
North Dakota---------	1	16	102	2	21	3				145
South Dakota---------	7	9	86	9	23					134
Nebraska-------------	3	42	127	11	21	6				210
Kansas---------------	22	54	207	43	24	11				361
Delaware-------------	7	26	78	7	10					128
Maryland-------------	26	117	303	40	41	2		1		530
Virginia-------------	15	119	253	47	23	3				460
West Virginia--------	11	25	101	21	1					159
North Carolina-------	11	90	197	59	20					377
South Carolina-------	3	107	128	41	21					300
Georgia--------------	14	47	103	37	18					219
Florida--------------	1	96	50	60	8					215
Kentucky-------------	1	35	113	50	18					217
Tennessee------------	2	79	93	87	12	6				279
Alabama--------------	9	43	80	54	10					196
Mississippi----------	5	55	30	60	6					156
Arkansas-------------	4	29	51	20	2	4				110
Louisiana------------		48	29	18	1			1		97
Oklahoma-------------	8	28	102	40	13	7				198
Texas----------------	7	47	147	97	27	1				326
Montana--------------		9	34	6	8					57
Idaho----------------	1	37	84	43	9	3				177
Wyoming--------------		3	16							19
Colorado-------------	6	36	89	28	25	3				187
New Mexico-----------		40	23	20						83
Arizona--------------	1	43	78	11	6					139
Utah-----------------	2	30	127	24	3					186
Nevada---------------		3	6	22						31
Washington-----------	9	65	137	65	4	2				282
Oregon---------------	9	54	82	96	11	2				254
California-----------	1	58	65	20	2					146
Puerto Rico----------			4							4
Hawaii---------------			3							3
Alaska---------------			1							1
Total----------------	248	1,397	3,822	991	297	82		2	1	16,718 1/ 6,840 2/

1/ Represents the number of individual sire records sent to States.
2/ Represents the number of sires summarized.

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA OWNER SAMPLER WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-136
Dairy-Herd-Improvement Letter (Vol. 39, No. 7)

November-December 1963

4,000 SIRES SUMMARIZED IN NOVEMBER 1963

A total of 4,000 sires were summarized in November 1963, 23 percent of which represented bulls active in AI. The cooperating States were sent 10,169 sire records.

Fifty percent of the summarized AI sires maintained or increased milk yield and 56 percent maintained or increased fat yield. The corresponding values for non-AI sires were 48 and 52 percent, respectively. The results of the November 1963 summary are shown in Tables 2, 3, and 5.

A total of 16,899 summaries were included in the three evaluations for 1963. For each bull the average number of daughters with herdmates was 152 and 11 for AI and non-AI sires, respectively.

1,040,489 DHIA LACTATION RECORDS REPORTED IN PAST 10 MONTHS

New lactation records numbering 597,600 were reported and processed as a part of the July 1963 sire evaluation. The November 1963 evaluation included 542,889 newly reported records. During the 10 month period ending on September 15, 1963, 1,040,489 lactation records were reported, approximately 50 percent of which were via magnetic tape.

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Issued January 1964

PUBLICATION OF HIGH-RANKING PROGENY OF AI SIRES
(Cow Index Ratings)

Since 1962, superior progeny of bulls used in artificial service have been identified and published on the DHIA Sire Summary Record (DHIA-1202) of their sire. It has become apparent that more refined procedures for evaluating cows would be useful to the industry, and such procedures are now practical with the aid of high-speed computing facilities.

The evaluation of the breeding potential of cows provides another avenue of usage of production testing information collected in herds of dairymen participating in the National Cooperative Dairy Herd Improvement Program.

The evaluation of breeding values of registered daughters of AI sires will be based on the performance of the cow herself and that of her artificially sired paternal half-sisters. Lists will represent the top two percent of registered progeny of AI sires. These lists will have several avenues of usefulness to the industry. The cows identified will be the genetically most desirable animals resulting from AI in DHIA and DHIR herds. The information on these outstanding cows will be available for use by extension workers in their educational and demonstration programs in the States. The lists of cows will also be a means of locating sources of desirable breeding stock. Finally, this information can be an aid to the AI industry in increasing the rate of genetic progress in herds using AI.

Research indicates that about one-third of the total potential for genetic improvement can be realized by selection of the most outstanding cows available to produce the bulls to be used in future service. A number of AI organizations are actively pursuing programs of selected matings of top cows to the best AI-proven sires available. The USDA-DHIA list of high-ranking registered daughters of AI bulls will offer a useful means of identifying cows to be considered for such matings.

Calculation of the Cow Index Rating

Application of the principles of quantitative genetics provides many different ways of estimating the value of a cow for breeding use. There are many different sources of information on a cow's genetic worth available for animals in production-tested herds.

Registered progeny of AI sires are currently being screened exclusively on their own production superiority with respect to their contemporary herdmates. This information is published for the highest rated cows on the DHIA-1202 summary of the sire of the cow. No estimate of breeding value of cows is provided on these individual sire reports.

Production-tested relatives also provide additional information as to the merit of offspring a cow is likely to produce. Many different types of relatives may be available for an individual, such as maternal half-sisters, paternal half-sisters, full sisters, dam, daughters, etc. Generally, the closer the relationship, the more information a relative's performance provides on the genetic value of a cow.

Procedures for combining accurately the various types of information on relatives, together with the production of the cow herself, have been available for many years. The use of high-speed automatic data processing equipment now makes the screening of records of large numbers of animals practical.

The most useful single type of information on relatives available to shed light on a cow's breeding value is the performance of her artificially sired paternal half-sisters. This is true because AI paternal half-sisters can be very numerous, and because these paternal half-sisters will be scattered over many different levels of herd environment. Many other types of relatives are likely to have experienced similar environmental circumstances as the cow herself.

In view of the above consideration, and because information on other relatives is much more expensive to compile, the estimate of genetic value of cows in the USDA-DHIA list of high-ranking registered daughters of AI sires will be based only on the cow's own superiority over her herdmates and the average superiority over herdmates of her artificially sired paternal half-sisters.

Similar evaluations of progeny of bulls used solely in natural service are not available. The natural-service paternal half-sisters and the cow herself usually will have experienced similar environmental conditions. This means that natural-service paternal half-sisters do not provide nearly as much information about a cow's breeding value as an equal number of artificially sired sisters. For this reason only progeny of bulls with AI daughters will be evaluated.

The two types of information will be combined by the *selection index* procedure and hence, the result can be called the *index* of the cow's breeding value. The selection index method assures that the cow's own production and that of her paternal half-sisters are combined so that the resulting index of breeding value corresponds more closely to the cow's true genetic value than any other available criterion based on the same information.

The accompanying table is shown simply to demonstrate the relative importance of paternal half-sib information to records of the cow herself.

Number of Records		Weight		
Cow	Paternal Sisters	Cow	Paternal Sisters	Relative Emphasis
1	5	0.24	0.19	0.8
1	25	.22	.49	2.2
1	200	.20	.74	3.7
2	5	.33	.17	.5
2	25	.31	.43	1.4
2	200	.29	.66	2.3
4	5	.41	.15	.4
4	25	.38	.38	1.0
4	200	.36	.59	1.6

This table merely indicates the way in which the amounts of information available on the cow and her paternal sisters are balanced to alter the relative emphasis as more or less data from the two sources are used. The last column of the table gives the relative emphasis on the paternal-sib information as compared to the cow's own performance.

The index rating of the cow (both milk and butterfat production) will be expressed in terms of a difference from zero. Therefore, the best cow is the one with the highest positive index.

To illustrate the calculation of the index values, consider an example in which a cow has two DHIA lactation records available:

Cow's 305-2X-ME

Lactation	Record	Adj. Herdmate Average
1	12,287	11,058
2	12,995	11,216
Average	12,641	11,137

Suppose that this cow has 200 AI paternal half-sisters with an average deviation from their contemporaries of plus 361 pounds of milk. The proper weights are obtained and the index calculated as follows:

$$\text{Index} = 0.29\ (12{,}641 - 11{,}137) + 0.66\ (361) = 674 \text{ lbs.}$$

The index does not account for genetic differences which may exist between herds using AI. However, if such differences exist, they are likely to be small.

Description of List of Cow Index Ratings

An example of the listing which is to be printed and distributed is shown in Table 4. It should be noted that the format of this publication corresponds closely to that for listing cows on the DHIA-1202 Sire Summary Record.

In the first column the DHIA herd code of the last herd in which the cow made a record is given.

The next column lists the registration number of the cow. Canadian registrations are denoted by 9-digit numbers which contain an "01" in the left-most positions. Column 3 provides an indication as to whether the cow was conceived before or after her sire entered artificial service: An "A" indicates artificially sired; a blank indicates naturally sired.

The registration number of the cow's sire is given in the following column. Since all sires whose progeny appear on the Cow Index Listings have previously been summarized in DHIA, further information on the sire can be obtained from the latest edition of the DHIA Sire Summary List.

Next are presented the month, day, and year in which the cow was born. Following this are data on the average number and performance of the cow's herdmates, averaged over all of her individual lactations.

The average days in milk, the number of records of the cow, and her average milk, percent test, and butterfat production are presented next.

The "conditions affecting record" code (if any) of the cow's last available record is listed in the column after the cow's average butterfat yield. This code provides some clue as to whether a cow is still alive. If the cow was removed from the herd during the last available lactation, this is indicated by a "2" or "3" code in this column. A "2" indicates sold--presumably for dairy purposes, while a "3" indicates died or sold for slaughter.

In the final two columns are listed an index difference rating of the cow for milk and butterfat. The index is computed (see page 5) by multiplying a weight times the superiority of the cow over her herdmates and adding the result to the product of a second weight times the average superiority of her AI paternal half-sisters over their herdmates. The two weights mentioned above depend upon the number of records of the cow and the number of paternal half-sisters.

The listings will be separated by breed and will be arranged in herd code sequence. They will contain approximately the top two percent of registered daughters of AI sires summarized in DHIA and DHIR. The determination of cows to be listed will be based on the index rating for milk production. The lists are to be produced from results of DHIA sire summaries; therefore, a cow cannot be evaluated unless her sire was currently summarized. Since active AI sires are to be resummarized routinely, all registered daughters of these bulls would be eligible for listings.

The cow index ratings will be made available twice annually, beginning in 1964. Copies will be furnished to extension specialists and to AI organizations.

EXPANDED NURSE COW TABLE

It is frequently necessary to estimate monthly production credits of cows because of missing or spoiled milk samples, obvious abnormality, or temporary nurse cow status. The information used in estimating these monthly production credits in DHIA has been referred to as the nurse cow table. The table is based on the normal lactation curve (persistency) in which maximum rate of yield is normally reached during the second month of production and declines at an increasingly rapid rate thereafter.

In 1961, Van Vleck and Henderson of Cornell University, using ratio factor methods, provided a new set of factors for estimating missing monthly production credits. This study was based on 9,036 Holstein cows in 374 New York herds. These factors are shown in Table 1.

TABLE 1--MONTHLY TEST-DAY RECORD TO BE ESTIMATED

	1	2	3	4	5	6	7	8	9	10
Line 1	---	1.05	.95	.91	.90	.89	.85	.80	.67	.62
Line 2	.95	1.05	1.10	1.11	1.13	1.18	1.24	1.50	1.60	---
Line 3	---	.52	.51	.50	.50	.51	.50	.52	.47	---

Line 1 is applicable for estimating a missing test-day credit when the previous test-day milk weight is known. For example, if a cow produced 40 pounds of milk on the fourth test-day, the estimated yield for the fifth test-day is (40 x .90) or 36 pounds.

Line 2 is applicable when estimating a missing test-day credit if the succeeding test-day milk weight is known. For example, if a cow produced 70 pounds of milk on the second test-day, the estimated yield for the first month is (70 x .95) = 66.5 or 67 pounds.

Line 3 is used for estimating a missing test-day credit when both preceding and succeeding test-day milk weights are known. For example, if a cow produced 30 pounds of milk in the 7th month and 20 pounds of milk in the 9th month, the estimated yield for the 8th month is (30 + 20) x .52 = 26 pounds. Since this method is based on the normal lactation curve, it is more accurate than a simple average of the preceding and succeeding test-day weights, especially in early and late lactation.

Using Line 1 from the work of Van Vleck and Henderson, the DHIA nurse cow table has been revised and expanded to include a wider range in production. The resulting new nurse cow table is shown in Table 6, additional copies of which are available upon request.

The nurse cow table is expressed in pounds of daily milk yield. In estimating butterfat yield, DHIA Rule 14 is applicable and is as follows: "When a sample is lost, the previous month's butterfat test shall be used. When milk weights are not obtained, the pounds of milk for the current testing day shall be estimated from the previous month's record by use of the nurse cow table in the DHIA Supervisor's Manual. In either case, the record shall be marked "Estimated".

ERRATUM:

September-October 1963 Letter. The first sentence of the first paragraph on page 4 should read as follows: "Approximately 2.4 percent of the herds were producing below the above levels for the respective breeds."

TABLE 2--PERFORMANCE OF AI SIRES SUMMARIZED IN NOVEMBER 1963, AS MEASURED BY THE PRODUCTION OF PROGENY AND THEIR HERDMATES

Breed	Sires				Daughters Average Production			Herdmates Average Production		
	Total	Milk Yield Maintained or increased	Fat Yield Maintained or increased	Daughters with Herdmates	Milk	Test	Fat	Milk	Test	Fat
	No.	%	%	No.	Lbs.	%	Lbs.	Lbs.	%	Lbs.
Ayrshire	28	82	75	2,265	10,491	4.1	428	10,148	4.1	415
Guernsey	193	48	55	19,011	8,732	4.8	421	8,761	4.8	420
Holstein	493	49	56	121,310	12,939	3.7	478	13,012	3.7	478
Jersey	134	49	52	9,028	8,257	5.2	431	8,287	5.2	431
Brown Swiss	54	56	61	3,578	11,271	4.1	464	11,032	4.1	454
Milking Shorthorn	11	27	45	86	8,667	3.8	330	8,920	3.8	337
Overall	913	50	56	155,278	11,137	4.1	455	11,166	4.1	454

TABLE 3--PERFORMANCE OF NON-AI SIRES SUMMARIZED IN NOVEMBER 1963, AS MEASURED BY THE PRODUCTION OF PROGENY AND THEIR HERDMATES

Breed	Sires				Daughters Average Production			Herdmates Average Production		
	Total	Milk Yield Maintained or increased	Fat Yield Maintained or increased	Daughters with Herdmates	Milk	Test	Fat	Milk	Test	Fat
	No.	%	%	No.	Lbs.	%	Lbs.	Lbs.	%	Lbs.
Ayrshire	116	50	53	873	9,978	4.1	412	10,024	4.1	407
Guernsey	583	49	52	4,947	8,816	4.8	427	8,818	4.8	424
Holstein	1,842	48	51	15,201	12,981	3.7	478	13,012	3.7	477
Jersey	387	48	53	3,411	8,118	5.3	427	8,173	5.2	425
Brown Swiss	114	54	59	1,020	11,262	4.2	472	11,141	4.1	459
Milking Shorthorn	34	59	56	307	8,915	3.8	342	8,742	3.8	334
Overall	3,076	48	52	25,759	11,358	4.0	458	11,379	4.0	456

TABLE 4--HIGH-RANKING PROGENY OF AI SIRES
(Example for illustration only)

Herd Code	Cow Number	AI	Sire Number	Birth-date	Adj. Herdmate Average			Production of Cow					C A R	Cow Index	
					Herd-mates	Milk	Fat	Days	Lacta-tions	Milk	Test	Fat		Milk	Fat
					No.	Lbs.	Lbs.	No.	No.	Lbs.	%	Lbs.		Lbs.	Lbs.
21129875	3646349	A	955619	12- 1-52	10	13,434	503	301	3	23,273	3.7	854		3,703	134
21230937	4541969	A	1112211	11- 6-57	36	13,715	469	305	3	23,960	3.1	745		4,303	119
21290886	4227550		1112211	12-10-53	24	14,728	524	305	3	23,910	3.7	891		3,952	149
21309014	4368751	A	1240125	11-26-56	10	13,160	492	305	3	23,410	3.7	867		4,073	148
23050168	4299248	A	1056882	2-28-54	16	12,908	483	305	2	26,210	3.1	811		3,773	92
33310342	4795039	A	1090340	9-12-57	10	13,161	480	305	2	23,310	3.5	825		3,775	130
33450714	4424683	A	1090340	2-11-55	8	13,243	526	305	2	23,710	3.4	817		3,866	115
35790133	3466941	A	1038509	4-26-51	15	13,824	503	305	3	23,197	3.3	777		3,890	112
51140027	3528007		1077788	5- 7-52	8	9,504	359	305	3	20,177	3.4	691		4,098	126
82360176	3799324	A	1123249	8- 2-53	4	13,554	471	286	5	22,444	3.2	729	3	3,835	118

TABLE 5--NUMBER OF SIRE RECORDS SUMMARIZED NOVEMBER 1963, BY STATE, BY BREED

State	Ayrshire	Guernsey	Holstein	Jersey	Brown Swiss	Shorthorn	Total
	Number	Number	Number	Number	Number	Number	Number
Maine	8	29	89	21	4	5	156
New Hampshire	19	26	82	25	3	2	157
Vermont	22	49	177	66	15		329
Massachusetts	24	47	149	32	18	1	271
Rhode Island	9	6	47	2			64
Connecticut	17	63	116	20	21		237
New York	42	91	546	66	28		773
New Jersey	2	59	131	17	13		222
Pennsylvania	33	213	542	77	31	5	901
Ohio	13	68	226	73	38	3	421
Indiana	4	80	151	44	28	2	309
Illinois	16	94	213	30	40	5	398
Michigan	6	50	241	25	23	2	347
Wisconsin	9	91	383	25	52	10	570
Minnesota	15	63	248	26	29	8	389
Iowa	22	57	205	42	37	12	375
Missouri		45	88	25	8	3	169
North Dakota	1	10	37	3	10	1	62
South Dakota	5	3	59	7	8		82
Nebraska		22	84	5	10		121
Kansas	9	36	115	18	16	6	200
Delaware	3	15	60	5	6		89
Maryland	9	79	222	23	23	2	358
Virginia	7	78	221	25	12	3	346
West Virginia	8	20	81	16	1		126
North Carolina	6	56	145	42	15		264
South Carolina	1	48	82	32	15		178
Georgia	5	18	90	20	12		145
Florida	1	46	28	33	9		117
Kentucky		27	96	30	8		161
Tennessee	2	50	66	43	11	4	176
Alabama	2	28	54	37	5		126
Mississippi	8	38	20	42	4		112
Arkansas	3	15	30	7		4	59
Louisiana		35	22	7	2		66
Oklahoma	5	17	45	17	8	5	97
Texas	7	18	99	34	19		177
Montana	1	7	18	4	6	1	37
Idaho	1	35	66	28	8	3	141
Wyoming		2	14		1		17
Colorado	1	24	64	12	12		113
New Mexico		15	20	6			41
Arizona		17	31	6	4		58
Utah	2	18	91	10	2		123
Nevada		1	3	7			11
Washington	10	44	104	28	5		191
Oregon	1	49	61	45	4	4	164
California	1	39	53	17			110
Puerto Rico			10				10
Hawaii			1				1
Alaska			1		1		2
Total	144	780	2,339	521	170	46	10,169 1 4,000 2

1/ Represents the number of individual sire records sent to States.
2/ Represents the number of sires summarized.

TABLE 6--NURSE COW TABLE [a]

Estimated 305-day production	Estimated daily production for each testing period									
	1st	2d	3d	4th	5th	6th	7th	8th	9th	10th
4,360	20	21	20	18	16	15*	12	10*	6.6	4.1
4,550	21	22	21	19	17	15	13	10	7.0	4.3
4,790	22	23	22*	20*	18*	16*	14*	11*	7.2	4.5
5,030	23	24	23	21*	19*	17*	14	11	7.6	4.7
5,250	24	25	24*	22*	20*	17	15*	12*	7.9	4.9
5,430	25	26	25	23*	21*	18	16*	12	8.3	5.1
5,680	26	27	26*	24*	21	19*	16	13*	8.6	5.3
5,920	27	28	27	25*	22	20*	17*	13	9.0	5.6
6,070	28	29	28*	25	23*	20	17	14*	9.2	5.7
6,290	29	31*	29	26	24*	21	18	14	9.6	6.0
6,560	30	32*	30*	27	25*	22*	19*	15*	9.9	6.1
6,740	31	33*	31	28*	25	22	19	15	10.2	6.3
7,010	32	34*	32*	29	26	23	20*	16*	10.6	6.6
7,200	33	35*	33	30	27	24	20	16	10.9	6.8
7,440	34	36*	34*	31*	28*	25*	21	17*	11.3	7.0
7,630	35	37*	35	32*	29*	26*	22*	17	11.7	7.3
7,840	36	38*	36*	33*	29	26	22	18*	11.9	7.4
8,080	37	39*	37	34*	30	27	23	18	12.3	7.6
8,330	38	40*	38*	35*	31	28*	24*	19*	12.6	7.8
8,480	39	41	39	36*	32	29*	24	19	13.0	8.1
8,720	40	42	40*	36	33*	29	25*	20*	13.3	8.2
8,900	41	43	41*	37	34*	30*	25	20	13.5	8.4
9,180	42	44	42*	38	34	31*	26*	21*	13.9	8.6
9,400	43	45	43*	39	35	31	27*	21	14.2	8.8
9,610	44	46	44*	40*	36*	32*	27	22*	14.4	8.9
9,820	45	47	45*	41*	37*	33*	28*	22	14.8	9.2
10,030	46	48	46*	42*	38*	34*	29*	23*	15.3	9.5
10,250	47	49	47*	43*	38	34	29	23	15.6	9.7
10,490	48	50	48*	44*	39	35*	30*	24*	15.9	9.9
10,650	49	52*	49*	45*	40	36*	30	24	16.2	10.0
10,920	50	53*	50*	45	41*	36	31*	25*	16.5	10.2
11,170	51	54*	51*	46	42*	37	32*	25	16.9	10.5
11,350	52	55*	52*	47	43*	38*	32	26*	17.2	10.7
11,590	53	56*	53*	48	43	39*	33*	26	17.6	10.9
11,780	54	57*	54*	49	44	39	33	27*	17.8	11.0
11,990	55	58*	55*	50	45	40	34	27	18.3	11.3
12,290	56	59*	56*	51*	46*	41*	35*	28*	18.6	11.5
12,440	57	60*	57*	52*	47*	42*	35	28	18.9	11.7
12,660	58	61*	58*	53*	47	42	36*	29*	19.2	11.9
12,870	59	62	59*	54*	48	43*	37*	29	19.6	12.2
13,120	60	63	60*	55*	49	44*	37	30*	19.9	12.3
13,300	61	64	61*	55	50*	44	38*	30	20.2	12.5
13,540	62	65	62*	56	51*	45	38	31*	20.5	12.7
13,730	63	66	63*	57	52*	46*	39*	31	20.8	12.9
13,970	64	67	64*	58	52	47*	40*	32*	21.2	13.1
14,150	65	68	65*	59	53	47	40	32	21.6	13.4

[a] See footnote at end of table.

TABLE 6--NURSE COW TABLE (Continued)

Estimated 305-day production	Estimated daily production for each testing period									
	1st	2d	3d	4th	5th	6th	7th	8th	9th	10th
14,430	66	69	66*	60*	54*	48	41*	33*	21.8	13.5
14,610	67	70	67*	61*	55*	49*	42*	33	22.2	13.8
14,850	68	71	68*	62*	56*	49	42	34*	22.5	14.0
15,040	69	73*	69*	63*	56	50	43*	34	22.9	14.2
15,280	70	74*	70*	64*	57	51*	43	35*	23.2	14.4
15,560	71	75*	71*	65*	58	52*	44*	35	23.5	14.6
15,710	72	76*	72*	65	59*	52	45*	36*	23.9	14.8
15,920	73	77*	73*	66	60*	53	45	36	24.2	15.0
16,170	74	78*	74*	67	61*	54*	46*	37*	24.5	15.2
16,350	75	79*	75*	68	61	55*	46	37	24.9	15.4
16,590	76	80*	76*	69	62	55	47	38*	25.2	15.6
16,840	77	81*	77*	70	63	56	48*	38	25.6	15.9
17,050	78	82*	78*	71*	64*	57*	48	39*	25.9	16.1
17,230	79	83	79*	72*	65*	58*	49*	39	26.2	16.2
17,420	80	84	80*	73*	65	58	49	40*	26.5	16.4
17,690	81	85	81*	74*	66	59*	50	40	26.9	16.7
17,900	82	86	82*	74	67	60*	51*	41*	27.2	16.9
18,090	83	87	83*	75	68*	60	51	41	27.5	17.1
18,330	84	88	84*	76	69*	61	52*	42*	27.8	17.2
18,540	85	89	85*	77	70*	62*	53*	42	28.2	17.5
18,790	86	90	86*	78	70	63*	53	43*	28.5	17.7
18,970	87	91	87*	79	71	63	54*	43	28.8	17.9
19,180	88	92	88*	80*	72*	64	54	44*	29.1	18.0
19,430	89	94*	89*	81*	73*	65*	55	44	29.5	18.3
19,670	90	95*	90*	82*	74*	65	56*	45*	29.8	18.5
19,860	91	96*	91*	83*	74	66	56	45	30.2	18.7
20,130	92	97*	92*	84*	75	67*	57*	46*	30.5	18.9
20,280	93	98*	93*	84	76	68*	57	46	30.8	19.1
20,500	94	99*	94*	85	77*	68	58	47*	31.2	19.3
20,770	95	100*	95*	86	78*	69	59*	47	31.5	19.5
20,950	96	101*	96*	87	78	70*	59	48*	31.8	19.7
21,170	97	102*	97*	88	79	71*	60	48	32.2	20.0
21,410	98	103*	98*	89	80	71	61*	49*	32.5	20.2
21,590	99	104*	99	90*	81*	72	61	49	32.8	20.3
21,840	100	105	100*	91*	82*	73*	62*	50*	33.1	20.5
22,910	105	110	105*	95	86	76	65	52	34.8	21.6
24,000	110	116	110*	100*	90*	80*	68*	54	36.4	22.6
25,100	115	121*	115*	104	94	84*	71	57*	38.1	23.6
26,170	120	126	120*	109*	98	87	74	59	39.7	24.6
27,270	125	131	125*	113	102	91	77	62*	41.5	25.7

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a/ See The Supervisor's Manual, page 20, for instructions for using the table. The numbers marked with an asterisk (*) were raised to the nearest whole number.

Factors used for this table were developed by Dr. L. D. Van Vleck and Dr. C. R. Henderson, Cornell University, Ithaca, New York.

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA
OWNER SAMPLER
WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-137
Dairy-Herd-Improvement Letter (Vol. 40, No. 1)

January-February 1964

1,320,423 LACTATION RECORDS REPORTED IN 1963

The number of lactation records reported to the USDA for sire evaluation and research reached an alltime high of 1,320,423 in 1963, 109,016 more than in 1962. Of these, 53.1 percent were reported via magnetic tapes, 36.4 percent as punched 1095 cards, and 10.5 percent as hand-recorded 718 cards. Further breakdown of records reported by States is shown on page 3.

Both the number of lactation records reported and the percentages of cows represented have increased steadily through the years. Since 1950, the number of cows enrolled in DHIA and DHIR have increased approximately 100 percent, while the number of lactation records reported to the USDA have increased 180 percent. Consequently, the percentage of cows on test having reported records has increased from 43 percent in 1950 to 66 percent in 1963. This more complete reporting of records is largely attributed to the rapid development of central processing of DHIA records since the mid 1950's, and results in a more complete and accurate sire evaluation program. A summary of lactation records reported since 1950 is shown on page 2.

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Issued March 1964

Year	Cows enrolled (Number)	Records reported (Number)	Cows represented (%)
1950	1,088,872	471,721	43
1955	1,333,866	636,293	48
1960	1,746,752	886,495	51
1962	1,958,355	1,211,407	62
1963	2,006,534	1,320,423	66

CONTINUED DECREASE IN NUMBER OF 718 CARDS REPORTED

A direct result of central processing of DHIA in State and regional centers has been the continuing decrease in the need for reporting of hand-recorded 718 cards. In 1961, 21.5 percent (233,468) of the records were reported as 718 cards. The corresponding values were 14.5 percent (175,404) in 1962 and 10.5 percent (138,441) in 1963.

PRODUCTION RECORDS REPORTED TO THE USDA BY THE STATE EXTENSION SERVICE DURING 1963

State	1963									1962	
	DHIA Cows on test 1-1-63	Production Records Reported			Total DHIA Records Reported	Herd Test Records Reported		All Records Reported		Production Records Reported	
		718	1095	Magnetic Tape		Guernsey	Jersey				
	No.	No.	No.	No.	No.	No.	No.	No.	% 1/	No.	% 1/
Ala--------	21,916	169	19,420	-	19,589	6	4	19,599	89.4	13,889	65.9
Alaska-----	430	19	71	-	90	-	-	90	20.9	58	17.1
Arizona----	20,860	96	3,471	-	3,567	92	26	3,685	17.7	4,756	22.4
Ark--------	3,583	-	-	3,169	3,169	117	150	3,436	95.9	3,543	95.4
Calif------	330,389	4,137	987	-	5,124	928	609	6,661	2.0	7,081	2.1
Colo-------	11,976	-	5,444	-	5,444	34	16	5,494	45.9	5,408	31.9
Conn-------	23,396	643	-	15,002	15,645	309	-	15,954	68.2	22,536	91.2
Del--------	4,372	-	-	5,232	5,232	113	-	5,345	122.3	4,901	141.0
Fla--------	19,207	1,681	6,681	-	8,362	156	-	8,518	44.3	8,322	39.2
Ga---------	25,460	1,484	14,406	-	15,890	43	157	16,090	63.2	12,425	47.9
Hawaii-----	1,240	14	-	-	14	-	-	14	1.1	45	52.9
Idaho------	26,180	3,994	2,563	-	6,557	114	16	6,687	25.5	7,046	26.0
Ill--------	62,428	8,552	39,933	-	48,485	396	189	49,070	78.6	41,155	68.0
Ind--------	38,210	-	27,737	-	27,737	232	244	28,213	73.8	33,822	93.2
Iowa-------	57,973	1,791	-	46,693	48,484	51	121	48,656	83.9	61,156	105.9
Kansas-----	29,175	3,454	-	19,679	23,133	113	87	23,333	80.0	25,502	80.3
Ky---------	21,000	3,225	9,881	-	13,106	25	358	13,489	64.2	13,181	62.2
La---------	5,214	376	2,594	-	2,970	342	138	3,450	66.2	1,860	41.8
Maine------	21,610	3,468	-	18,809	22,277	15	18	22,310	103.2	19,278	86.6
Md---------	48,234	6,725	-	34,057	40,782	213	171	41,166	85.3	30,661	65.3
Mass-------	23,134	1,302	-	23,094	24,396	166	384	24,946	107.8	25,078	111.4
Mich-------	78,800	-	41,867	-	41,867	104	330	42,301	53.7	77,137	105.5
Minn-------	125,156	23,959	949	51,432	76,340	126	148	76,614	61.2	76,881	61.6
Miss-------	10,266	1,065	5,179	-	6,244	174	127	6,545	63.8	3,714	37.5
Mo---------	27,228	6,182	-	3,501	9,683	250	191	10,124	37.2	11,019	40.9
Mont-------	4,055	688	416	-	1,104	42	6	1,152	28.4	1,888	46.1
Nebr-------	13,750	411	27	8,925	9,363	217	25	9,605	69.9	9,947	78.3
Nev--------	4,042	-	1,767	-	1,767	-	3	1,770	43.8	1,198	31.4
N. H-------	11,101	271	-	14,558	14,829	57	23	14,909	134.3	11,923	91.2
N. J-------	29,474	6,093	-	12,021	18,114	709	287	19,110	64.8	17,685	58.4
N. Mex-----	4,383	24	1,022	-	1,046	90	127	1,263	28.8	1,416	29.2
N. Y-------	170,000	-	-	197,650	197,650	265	379	198,294	116.6	176,977	108.1
N. C-------	42,845	-	42,905	-	42,905	325	50	43,280	101.0	32,328	85.9
N. Dak-----	6,014	444	-	5,031	5,475	-	-	5,475	91.0	6,658	112.9
Ohio-------	80,446	7,122	34,202	-	41,324	1,724	1,690	44,738	55.6	42,862	56.5
Okla-------	9,255	61	-	6,398	6,459	15	195	6,669	72.1	6,935	79.0
Oreg-------	28,100	8,456	8,601	-	17,057	498	578	18,133	64.5	18,517	67.3
Pa---------	172,447	-	-	149,662	149,662	1,005	112	150,779	87.4	118,876	72.7
P. R-------	5,227	-	2,460	-	2,460	-	-	2,460	47.1	780	15.7
R. I-------	2,449	325	-	6,564	6,889	17	115	7,021	286.7	2,219	85.8
S. C-------	19,553	-	19,071	-	19,071	344	-	19,415	99.3	14,145	85.2
S. Dak-----	7,754	469	-	3,311	3,780	-	-	3,780	48.7	2,851	39.4
Tenn-------	24,369	389	10,664	-	11,053	529	311	11,893	48.8	7,275	31.8
Tex--------	27,995	1,070	17,474	-	18,544	191	728	19,463	69.5	16,211	56.9
Utah-------	18,447	-	16,045	-	16,045	-	-	16,045	87.0	17,881	100.1
Vt---------	49,689	7,086	-	26,872	33,958	35	439	34,432	69.3	35,673	73.2
Va---------	65,335	16,439	43,223	-	59,662	213	51	59,926	91.7	37,878	61.9
Wash-------	49,534	15,022	10,008	-	25,030	779	349	26,158	52.8	21,433	47.5
W. Va------	7,210	1,735	-	3,614	5,349	-	35	5,384	74.7	5,845	89.3
Wis--------	114,405	-	71,137	45,702	116,839	116	111	117,066	102.3	91,074	83.3
Wyo--------	1,218	-	388	-	388	25	-	413	33.9	478	35.6
U. S-------	2,006,534	138,441	460,593	700,976	1,300,010	11,315	9,098	1,320,423	65.8	1,211,407	61.9

1/ Values may vary considerably by State and exceed 100% depending largely upon ADPM and related record reporting and processing procedures in December and January of each year.

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RECORD BOOK
A plan for every size herd
STANDARD DHIA
OWNER SAMPLER
WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-138
(Vol. 40, No. 2)

Dairy-Herd-Improvement Letter

March 1964

DHIA PARTICIPATION REPORT
January 1, 1964

The National Cooperative Dairy Herd Improvement Program, which is a composite of the Standard (including DHIR), Owner-Sampler, and Weigh-a-Day-a-Month recordkeeping plans, included 67,664 herds and 2,822,522 cows on January 1, 1964. This represents 17.1 percent of the nation's dairy cow population and is an increase of 39,018 cows during the past year. Each of the 50 States and Puerto Rico are represented in the total program which includes 1,420 associations and 2,474 supervisors. The participation reports for the overall program, and the Standard, Owner-Sampler, and Weigh-a-Day-a-Month plans are shown in tables 1, 3, 4, and 5, respectively.

The steady growth of Standard DHIA is shown in table 2. During the past year, 1,267 fewer herds, but 3,610 more cows were included in herds averaging 49.4 cows. There has been a slight but steady decline in percentage of fat test since 1950, averaging 0.014 percent per year. These averages and rates of decline are in close agreement with those estimated for all U. S. dairy cows.

The Owner-Sampler plan includes 752,229 cows, 44 percent of which are in Wisconsin, and represents 25,598 herds averaging 29.4 cows. The 60,149 cows enrolled in the Weigh-a-Day-a-Month plan represent 1,396 herds averaging 43.1 cows.

Issued April 1964

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The continued advance of central processing is evident from table 6. Central processing of Standard plan records has reached 100 percent in 14 States, and in all States averages 74.2 percent of the herds and 64.6 percent of the cows. The corresponding values for the total recordkeeping program are 66.6 and 61.8 percent.

A 10-year summary of DHIA and all U. S. cows is shown in table 7. Since 1954, the nation's dairy herd has been decreasing by 560 thousand cows annually, while participation in the total recordkeeping program has increased by 165 thousand cows annually. The net result has been an increase in percent of U. S. cows participating in the total DHIA program from 6.2 in 1954 to 17.1 in 1963.

The list of counties having 25 percent or more of their dairy cows on one or more of the recordkeeping plans is shown on pages 10 and 11. This list, which is more selective by 5 percent than in the past, includes 463 counties.

Table 1--THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM
(January 1, 1964)

State	Associations	Supervisors	Standard		Owner-Sampler		Weigh-a-Day a-Month		Total		Milk cows in U. S.	
			Herds	Cows	Herds	Cows	Herds	Cows	Herds	Cows	Total 1/	In all plans 2/
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	Thousand	Pct.
Ala-----	22	21	269	22,522	19	1,633	37	2,519	325	26,674	216	12.3
Alsska--	2	2	12	521	-	-	-	-	12	521	3	17.4
Ariz----	5	10	143	20,355	14	3,059	-	-	157	23,414	51	45.9
Ark-----	11	12	75	3,605	36	1,150	26	450	137	5,205	191	2.7
Calif---	32	139	1,908	318,168	196	8,019	-	-	2,104	326,187	798	40.9
Colo----	15	22	215	12,973	26	902	-	-	241	13,875	111	12.5
Conn----	8	27	452	22,493	76	2,747	-	-	528	25,240	76	33.2
Del-----	3	5	89	3,703	15	370	3	54	107	4,127	24	17.2
Fla-----	9	10	109	18,726	7	2,137	28	10,479	144	31,342	177	17.7
Ga------	32	33	385	26,786	1	100	43	2,600	429	29,486	193	15.3
Hawaii--	1	1	14	3,089	1	200	4	215	19	3,504	14	25.0
Idaho---	40	40	747	28,713	10	165	6	335	763	29,213	192	15.2
Ill-----	58	94	1,646	63,952	419	12,679	235	6,407	2,300	83,038	504	16.5
Ind-----	57	80	1,124	40,297	299	8,480	-	-	1,423	48,777	398	12.3
Iowa----	72	93	1,786	57,438	1,486	33,736	12	153	3,284	91,327	790	11.6
Kans----	49	62	773	33,098	91	2,727	10	300	874	36,125	304	11.9
Ky------	44	53	535	22,000	7	126	66	1,946	608	24,072	480	5.0
La------	15	17	69	5,268	8	726	153	8,471	230	14,465	219	6.6
Maine---	15	33	484	19,322	106	3,542	5	120	595	22,984	90	25.5
Md------	16	40	835	45,373	88	3,335	-	-	923	48,708	212	23.0
Mass----	11	31	515	22,256	89	2,603	-	-	604	24,859	87	28.6
Mich----	89	130	2,170	86,263	1,894	54,995	34	1,083	4,098	142,341	627	22.7
Minn----	87	206	3,902	125,954	1,765	44,804	-	-	5,667	170,758	1,264	13.5
Miss----	17	20	190	11,334	2	155	80	3,000	272	14,489	304	4.8
Mo------	44	45	591	24,321	18	450	200	5,000	809	29,771	608	4.9
Mont 3/-	8	9	88	4,055	38	1,597	6	190	132	5,842	70	8.3
Nebr----	28	31	317	13,265	79	2,779	15	450	411	16,494	285	5.8
Nev-----	3	3	46	3,849	6	179	-	-	52	4,028	15	26.9
N. H----	9	17	289	12,927	81	2,438	1	30	371	15,395	50	30.8
N. J----	10	26	553	29,992	85	3,291	1	30	639	33,313	117	28.5
N. Mex--	6	8	36	5,354	5	469	4	1,410	45	7,233	40	18.1
N. Y----	49	208	3,795	167,490	2,995	97,407	-	-	6,790	264,897	1,217	21.8
N. C----	53	53	799	42,913	44	1,394	93	4,111	936	48,418	250	19.4
N. Dak--	17	17	190	6,612	57	1,258	86	1,602	333	9,472	255	3.7
Ohio----	83	145	2,283	80,600	1,487	36,656	7	256	3,777	117,512	626	18.8
Okla----	17	20	183	10,589	44	1,604	16	597	243	12,790	213	6.0
Oreg----	18	27	440	27,215	150	4,600	10	250	600	32,065	144	22.3
Ps------	58	208	4,746	172,807	1,420	37,969	-	-	6,166	210,776	848	24.9
P. R----	1	5	19	4,688	-	-	21	2,303	40	6,991	-	-
R. I----	2	2	50	2,518	4	117	-	-	54	2,635	12	22.0
S. C----	21	21	242	19,858	3	144	31	1,208	276	21,210	100	21.2
S. Dak--	15	14	174	6,876	271	6,690	-	-	445	13,566	230	5.9
Tenn----	39	33	487	25,510	2	77	73	1,653	562	27,240	476	5.7
Tex-----	27	30	348	27,782	8	380	11	910	367	29,072	519	5.6
Utah----	19	19	400	18,237	21	637	-	-	421	18,874	90	21.0
Vt------	31	73	996	47,298	549	19,800	-	-	1,545	67,098	252	26.6
Va------	52	58	1,075	61,402	82	2,616	3	178	1,160	64,196	309	20.8
Wash----	23	42	871	50,766	209	7,706	1	131	1,081	58,603	222	26.4
W. Va---	12	16	228	9,720	13	533	75	1,708	316	11,961	112	10.7
Wis-----	61	156	2,934	117,995	11,237	332,021	-	-	14,171	450,016	2,127	21.2
Wyo-----	4	7	43	1,296	35	1,027	-	-	78	2,323	26	8.9
Total or average	1,420	2,474	40,670	2,010,144	25,598	752,229	1,396	60,149	67,664	2,822,522	16,538	17.1

1/ Average number of milk cows on farms excluding heifers not fresh; estimated by the Statistical Reporting Service.
2/ Percentage of cows included in the National Cooperative Dairy Herd Improvement Program.
3/ Based on last report available (1-1-63).

Table 2--GROWTH OF DAIRY-HERD-IMPROVEMENT ASSOCIATION WORK IN THE UNITED STATES (1906-1964, inclusive)

Year	Associations 1/	Supervisors 1/	Standard Plan					
			Herds	Cows	Cows per herd	Average production		
						Milk	Percent Fat	Fat
	No.	No.	No.	No.	No.	Lbs.		Lbs.
1906---	1	----	31	239	7.7	5,300	4.06	215
1907---	4	----	----	1,606	----	5,366	4.10	220
1908---	6	----	----	3,921	----	-----	----	---
1909---	25	----	----	11,921	----	-----	----	---
1910---	40	----	----	2/ 25,000	----	2/ 5,730	3.96	2/ 227
1911---	64	----	----	2/ 40,000	----	-----	----	---
1912---	82	----	----	2/ 43,000	----	-----	----	---
1913---	100	----	----	47,150	----	-----	----	---
1914---	163	----	----	73,280	----	-----	----	---
1915---	211	----	----	105,526	----	-----	----	---
1916---	346	----	----	150,677	----	-----	----	---
1917---	459	----	11,720	216,831	18.5	-----	----	---
1918---	353	----	9,778	172,518	17.6	-----	----	---
1919---	385	----	10,000	167,313	16.7	-----	----	---
1920---	468	----	11,948	203,472	17.0	6,175	4.00	247
1921---	452	----	11,209	193,928	17.3	-----	----	---
1922---	513	----	12,508	215,321	17.2	-----	----	---
1923---	627	----	16,357	277,010	16.9	-----	----	---
1924 3/	---	----	----	----	----	-----	----	---
1925---	732	----	18,677	307,073	16.4	7,189	3.95	284
1926---	777	----	19,540	327,653	16.8	7,331	3.96	290
1927---	837	----	21,128	362,014	17.1	7,411	3.95	293
1928---	947	----	23,327	414,891	17.8	7,476	3.96	296
1929---	1,090	----	26,182	465,804	17.8	7,498	3.97	298
1930---	1,143	----	27,888	507,549	18.2	7,642	3.96	303
1931---	1,112	----	26,308	510,714	19.4	7,812	3.92	306
1932---	1,005	----	20,351	427,044	21.0	7,858	3.95	310
1933---	881	----	15,447	358,501	23.2	7,849	3.99	313
1934---	793	----	13,694	325,837	23.8	8,015	4.02	322
1935---	809	----	15,573	364,218	23.4	7,977	4.04	322
1936---	876	----	17,344	404,412	23.3	7,912	4.03	319
1937---	992	----	20,772	496,562	23.9	7,923	4.04	320
1938---	1,106	----	23,701	558,993	23.6	7,831	4.05	317
1939---	1,228	----	25,949	625,284	24.1	7,977	4.05	323
1940---	1,300	----	27,948	676,141	24.2	8,133	4.07	331
1941---	1,383	----	31,381	763,502	24.3	8,225	4.07	335
1942---	1,421	----	32,957	816,117	24.8	8,323	4.07	339
1943---	1,057	----	24,155	616,972	25.5	8,325	4.06	338
1944---	954	----	20,825	561,587	27.0	8,296	4.05	336
1945---	949	----	21,254	577,200	27.2	8,592	4.03	346
1946---	1,124	----	23,331	627,878	27.0	8,635	4.04	349
1947---	1,426	----	28,812	775,546	26.9	8,638	4.03	348
1948---	1,668	----	33,274	886,129	26.6	8,675	4.03	350
1949---	1,787	----	35,851	943,939	26.3	8,907	4.03	359
1950---	1,973	----	40,100	1,088,872	27.2	9,172	4.03	370
1951---	2,143	----	42,949	1,186,615	27.6	9,195	4.02	370
1952---	2,109	----	40,105	1,166,297	29.1	9,192	3.98	366
1953---	2,151	----	40,983	1,226,588	29.9	9,253	3.98	368
1954---	2,175	----	41,254	1,311,698	31.8	9,363	3.97	372
1955---	2,288	----	41,240	1,333,866	32.3	9,502	3.95	375
1956---	2,266	----	40,984	1,406,306	34.4	9,713	3.94	383
1957 4/	1,700	2,310	41,638	1,479,799	35.5	9,894	3.93	389
1958---	1,544	2,293	39,985	1,548,884	38.7	10,068	3.91	394
1959---	1,500	2,337	40,284	1,607,538	39.9	10,327	3.88	401
1960---	1,509	2,397	41,293	1,746,752	42.3	-----	----	---
1961---	1,395	2,448	42,558	1,867,469	43.9	10,796	3.87	5/ 418
1962---	1,436	2,472	42,034	1,958,355	46.6	11,032	3.86	426
1963---	1,441	2,516	41,937	2,006,534	47.8	11,286	3.85	434
1964---	1,420	2,474	40,670	2,010,144	49.4	-----	----	---

1/ Number of associations and supervisors include all plans.
2/ Estimated.
3/ Date for collecting data changed in 1924 from July 1 to January 1.
4/ Prior to 1957 associations were counted on the basis of supervisor circuits.
5/ Date for summarizing data changed in 1961 from January 1 to May 1.

Table 3--STANDARD DHIA RECORDKEEPING IN THE UNITED STATES
(January 1, 1964)

State	Herds	Cows	Av. Cows per herd	Milk Cows in U. S. 1/ Total	Milk Cows in U. S. 1/ in DHIA
	No.	No.	No.	Thousand	Pct.
Ala------------	269	22,522	83.7	216	10.4
Alaska---------	12	521	43.4	3	17.4
Ariz-----------	143	20,355	142.3	51	39.9
Ark------------	75	3,605	48.1	191	1.9
Calif----------	1,908	318,168	166.8	798	39.9
Colo-----------	215	12,973	60.3	111	11.7
Conn-----------	452	22,493	49.8	76	29.6
Del------------	89	3,703	41.6	24	15.4
Fla------------	109	18,726	171.8	177	10.6
Ga-------------	385	26,786	69.6	193	13.9
Hawaii---------	14	3,089	220.6	14	22.1
Idaho----------	747	28,713	38.4	192	15.0
Ill------------	1,646	63,952	38.9	504	12.7
Ind------------	1,124	40,297	35.9	398	10.1
Iowa-----------	1,786	57,438	32.2	790	7.3
Kans-----------	773	33,098	42.8	304	10.9
Ky-------------	535	22,000	41.1	480	4.6
La-------------	69	5,268	76.3	219	2.4
Maine----------	484	19,322	39.9	90	21.5
Md-------------	835	45,373	54.3	212	21.4
Mass-----------	515	22,256	43.2	87	25.6
Mich-----------	2,170	86,263	39.8	627	13.8
Minn-----------	3,902	125,954	32.3	1,264	10.0
Miss-----------	190	11,334	59.7	304	3.7
Mo-------------	591	24,321	41.2	608	4.0
Mont 2/--------	88	4,055	46.1	70	5.8
Nebr-----------	317	13,265	41.8	285	4.7
Nev------------	46	3,849	83.7	15	25.7
N. H-----------	289	12,927	44.7	50	25.9
N. J-----------	553	29,992	54.2	117	25.6
N. Mex---------	36	5,354	148.7	40	13.4
N. Y-----------	3,795	167,490	44.1	1,217	13.8
N. C-----------	799	42,913	53.7	250	17.2
N. Dak---------	190	6,612	34.8	255	2.6
Ohio-----------	2,283	80,600	35.3	626	12.9
Okla-----------	183	10,589	57.9	213	5.0
Oreg-----------	440	27,215	61.9	144	18.9
Pa-------------	4,746	172,807	36.4	848	20.4
P. R-----------	19	4,688	246.7	-	-
R. I-----------	50	2,518	50.4	12	21.0
S. C-----------	242	19,858	82.1	100	19.9
S. Dak---------	174	6,876	39.5	230	3.0
Tenn-----------	487	25,510	52.4	476	5.4
Tex------------	348	27,782	79.8	519	5.4
Utah-----------	400	18,237	45.6	90	20.3
Vt-------------	996	47,298	47.5	252	18.8
Va-------------	1,075	61,402	57.1	309	19.9
Wash-----------	871	50,766	58.3	222	22.9
W. Va----------	228	9,720	42.6	112	8.7
Wis------------	2,934	117,995	40.2	2,127	5.5
Wyo------------	43	1,296	30.1	26	5.0
Total or average-------	40,670	2,010,144	49.4	16,538	12.2

1/ Average number of milk cows on farms excluding heifers not fresh; estimated by the Statistical Reporting Service.

2/ Based on last report available (1-1-63).

Table 4--OWNER-SAMPLER RECORDKEEPING IN THE UNITED STATES
(January 1, 1964)

State	Counties	Herds	Cows	Av. Cows per herd	Milk cows in U. S. 1/	
					Total	in O-S
	No.	No.	No.	No.	Thousand	Pct.
Ala------------	9	19	1,633	85.9	216	0.8
Alaska---------	-	-	-	-	3	-
Ariz-----------	3	14	3,059	218.5	51	6.0
Ark------------	13	36	1,150	31.9	191	.6
Calif----------	19	196	8,019	40.9	798	1.0
Colo-----------	8	26	902	34.7	111	.8
Conn-----------	8	76	2,747	36.1	76	3.6
Del------------	2	15	370	24.7	24	1.5
Fla------------	7	7	2,137	305.3	177	1.2
Ga-------------	1	1	100	100.0	193	.1
Hawaii---------	1	1	200	200.0	14	1.4
Idaho----------	3	10	165	16.5	192	.1
Ill------------	34	419	12,679	30.3	504	2.5
Ind------------	21	299	8,480	28.4	398	2.1
Iowa-----------	84	1,486	33,736	22.7	790	4.3
Kans-----------	28	91	2,727	30.0	304	.9
Ky-------------	6	7	126	18.0	480	-
La-------------	5	8	726	90.8	219	.3
Maine----------	14	106	3,542	33.4	90	3.9
Md-------------	11	88	3,335	37.9	212	1.6
Mass-----------	9	89	2,603	29.2	87	3.0
Mich-----------	72	1,894	54,995	29.0	627	8.8
Minn-----------	80	1,765	44,804	25.4	1,264	3.5
Miss-----------	2	2	155	77.5	304	.1
Mo-------------	4	18	450	25.0	608	.1
Mont 2/--------	6	38	1,597	42.0	70	2.3
Nebr-----------	30	79	2,779	35.2	285	1.0
Nev------------	1	6	179	29.8	15	1.2
N. H-----------	6	81	2,438	30.1	50	4.9
N. J-----------	7	85	3,291	38.7	117	2.8
N. Mex---------	4	5	469	93.8	40	1.2
N. Y-----------	49	2,995	97,407	32.5	1,217	8.0
N. C-----------	11	44	1,394	31.7	250	.6
N. Dak---------	20	57	1,258	22.1	255	.5
Ohio-----------	83	1,487	36,656	24.7	626	5.9
Okla-----------	12	44	1,604	36.5	213	.8
Oreg-----------	18	150	4,600	30.7	144	3.2
Pa-------------	58	1,420	37,969	26.7	848	4.5
P. R-----------	-	-	-	-	-	-
R. I-----------	2	4	117	29.3	12	1.0
S. C-----------	3	3	144	48.0	100	.1
S. Dak---------	33	271	6,690	24.7	230	2.9
Tenn-----------	2	2	77	38.5	476	-
Tex------------	5	8	380	47.5	519	.1
Utah-----------	10	21	637	30.3	90	.7
Vt-------------	13	549	19,800	36.1	252	7.9
Va-------------	16	82	2,616	31.9	309	.8
Wash-----------	27	209	7,706	36.9	222	3.5
W. Va----------	3	13	533	41.0	112	.5
Wis------------	68	11,237	332,021	29.5	2,127	15.6
Wyo------------	3	35	1,027	29.3	26	4.0
Total or average-------	934	25,598	752,229	29.4	16,538	4.5

1/ Estimated by the Statistical Reporting Service; average number of milk cows on farms during year excluding heifers not yet fresh.

2/ Based on last report available (1-1-63).

Table 5--WEIGH-A-DAY-A-MONTH RECORDKEEPING IN THE UNITED STATES
(January 1, 1964)

State	Counties	Herds	Cows	Av. Cows per herd	Milk cows in U. S. 1/ Total	Milk cows in U. S. 1/ in WADAM
	No.	No.	No.	No.	Thousand	Pct.
Ala-----------	18	37	2,519	68.1	216	1.2
Alaska--------	-	-	-	-	3	-
Ariz----------	-	-	-	-	51	-
Ark-----------	8	26	450	17.3	191	0.2
Calif---------	-	-	-	-	798	-
Colo----------	-	-	-	-	111	-
Conn----------	-	-	-	-	76	-
Del-----------	1	3	54	18.0	24	.2
Fla-----------	17	28	10,479	374.2	177	5.9
Ga------------	15	43	2,600	60.5	193	1.3
Hawaii--------	2	4	215	53.8	14	1.5
Idaho---------	3	6	335	55.8	192	.2
Ill-----------	32	235	6,407	27.3	504	1.3
Ind-----------	-	-	-	-	398	-
Iowa----------	4	12	153	12.8	790	-
Kans----------	10	10	300	30.0	304	.1
Ky------------	13	66	1,946	29.5	480	.4
La------------	27	153	8,471	55.4	219	3.9
Maine---------	2	5	120	24.0	90	.1
Md------------	-	-	-	-	212	-
Mass----------	-	-	-	-	87	-
Mich----------	16	34	1,083	31.9	627	.2
Minn----------	-	-	-	-	1,264	-
Miss----------	15	80	3,000	37.5	304	1.0
Mo------------	13	200	5,000	25.0	608	.8
Mont 2/-------	3	6	190	31.7	70	.3
Nebr----------	12	15	450	30.0	285	.2
Nev-----------	-	-	-	-	15	-
N. H----------	1	1	30	30.0	50	.1
N. J----------	1	1	30	30.0	117	-
N. Mex--------	4	4	1,410	352.5	40	3.5
N. Y----------	-	-	-	-	1,217	-
N. C----------	37	93	4,111	44.2	250	1.6
N. Dak--------	12	86	1,602	18.6	255	.6
Ohio----------	1	7	256	36.6	626	-
Okla----------	7	16	597	37.3	213	.3
Oreg----------	3	10	250	25.0	144	.2
Pa------------	-	-	-	-	848	-
P. R----------	8	21	2,303	109.7	-	-
R. I----------	-	-	-	-	12	-
S. C----------	10	31	1,208	39.0	100	1.2
S. Dak--------	-	-	-	-	230	-
Tenn----------	22	73	1,653	22.6	476	.3
Tex-----------	5	11	910	82.7	519	.2
Utah----------	-	-	-	-	90	-
Vt------------	-	-	-	-	252	-
Va------------	2	3	178	59.3	309	.1
Wash----------	1	1	131	131.0	222	.1
W. Va---------	21	75	1,708	22.8	112	1.5
Wis-----------	-	-	-	-	2,127	-
Wyo-----------	-	-	-	-	26	-
Total or average------	346	1,396	60,149	43.1	16,538	.4

1/ Estimated by the Statistical Reporting Service; average number of milk cows on farms during year excluding heifers not yet fresh.

2/ Based on last report available (1-1-63).

Table 6--RECORDS PROCESSED BY STATE AND REGIONAL DHIA COMPUTING CENTERS
(January 1, 1964)

State	Standard DHIA (Incl. DHIR)				DHIR		Owner-Sampler		Total 1/		Percent of Total Recordkeeping 1/	
	Herds	Cows	Herds	Cows	Herds	Cows	Herds	Cows	Herds	Cows	Herds	Cows
	No.	No.	Pct.	Pct.	No.	No.	No.	No.	No.	No.	Pct.	Pct.
Ala-------	269	22,522	100.0	100.0	16	1,474	5	326	274	22,848	84.3	85.7
Alaska----	3	87	25.0	16.7	3	87	-	-	3	87	25.0	16.7
Ariz------	37	3,674	25.9	18.0	10	1,069	3	270	40	3,944	25.5	16.8
Ark-------	75	3,605	100.0	100.0	8	245	36	1,150	111	4,755	81.0	91.4
Calif-----	36	8,039	1.9	2.5	-	-	-	-	36	8,039	1.7	2.5
Colo------	215	12,973	100.0	100.0	25	1,385	26	902	241	13,875	100.0	100.0
Conn------	363	17,872	80.3	79.5	86	4,867	58	2,094	421	19,966	79.7	79.1
Del-------	89	3,703	100.0	100.0	5	174	15	370	104	4,073	97.2	98.7
Fla-------	48	8,943	44.0	47.8	13	2,782	-	-	48	8,943	33.3	28.5
Ga--------	239	16,712	62.1	62.4	19	1,532	1	100	244	17,724	56.9	60.1
Hawaii----	-	-	-	-	-	-	-	-	-	-	-	-
Idaho-----	108	4,515	14.5	15.7	25	1,100	3	116	111	4,631	14.5	15.9
Ill-------	1,415	54,225	86.0	84.8	123	4,641	265	7,740	1,744	63,704	75.8	76.7
Ind-------	1,124	40,297	100.0	100.0	163	5,622	55	1,410	1,179	41,707	82.9	85.5
Iowa------	1,594	51,531	89.2	89.7	241	8,197	689	15,579	2,283	67,110	69.5	73.5
Kans------	531	22,812	68.7	68.9	94	3,630	51	1,489	582	24,301	66.6	67.3
Ky--------	313	11,874	58.5	54.0	45	1,652	7	126	320	12,000	52.6	49.9
La--------	52	3,185	75.4	60.5	6	400	8	726	213	12,382	92.6	85.6
Maine-----	390	16,059	80.1	83.1	49	2,570	88	3,029	478	19,088	80.3	83.0
Md--------	586	31,720	70.2	69.9	92	5,683	68	2,591	654	34,311	70.9	70.4
Mass------	464	19,952	90.1	89.6	90	4,056	60	1,872	524	21,824	86.8	87.8
Mich------	2,170	86,263	100.0	100.0	199	9,296	1,608	46,630	3,812	133,976	93.0	94.1
Minn------	1,895	60,797	48.6	48.3	153	5,454	1,259	31,331	3,154	92,128	55.7	54.0
Miss------	133	8,132	70.0	71.7	24	1,374	2	155	135	8,287	49.6	57.2
Mo--------	97	4,178	16.4	17.2	29	1,106	6	136	103	4,314	12.7	14.5
Mont 2/---	27	1,268	30.7	31.3	2	101	17	729	50	2,187	37.9	37.4
Nebr------	260	11,362	82.0	85.7	37	1,630	79	2,779	339	14,141	82.5	85.7
Nev-------	21	1,769	45.7	46.0	7	472	2	83	23	1,852	44.2	46.0
N. H------	289	12,927	100.0	100.0	46	2,012	51	1,398	340	14,325	91.6	93.0
N. J------	226	12,555	40.9	41.9	44	2,447	23	824	249	13,379	39.0	40.2
N. Mex----	27	3,621	75.0	67.6	11	779	-	-	27	3,621	60.0	50.1
N. Y------	3,795	167,490	100.0	100.0	401	17,600	2,400	78,000	6,195	245,490	91.2	92.7
N. C------	799	42,913	100.0	100.0	87	5,275	44	1,394	890	46,496	95.1	96.0
N. Dak----	155	5,727	81.6	86.6	14	491	26	659	181	6,386	54.4	67.4
Ohio------	1,720	59,928	75.3	74.4	305	11,252	300	7,768	2,020	67,696	53.5	57.6
Okla------	150	8,756	82.0	82.7	42	2,528	21	899	171	9,655	70.4	75.5
Oreg------	139	9,155	31.6	33.6	24	1,815	14	500	153	9,655	25.5	30.1
Pa--------	4,746	172,807	100.0	100.0	185	7,400	1,420	37,969	6,166	210,776	100.0	100.0
P. R------	19	4,688	100.0	100.0	19	4,688	-	-	19	4,688	47.5	67.1
R. I------	40	1,970	80.0	78.2	12	396	4	117	44	2,087	81.5	79.2
S. C------	242	19,858	100.0	100.0	43	3,451	3	144	245	20,002	88.8	94.3
S. Dak----	147	6,031	84.5	87.7	24	791	37	1,058	184	7,089	41.3	52.3
Tenn------	249	12,981	51.1	50.9	55	3,221	1	59	250	13,040	44.5	47.9
Tex-------	230	19,744	66.1	71.1	51	3,060	8	380	238	20,124	64.9	69.2
Utah------	400	18,237	100.0	100.0	16	600	21	637	421	18,874	100.0	100.0
Vt--------	542	25,116	54.4	53.1	77	2,694	198	6,900	740	32,016	47.9	47.7
Va--------	737	42,501	68.6	69.2	92	6,698	81	2,531	818	45,032	70.5	70.1
Wash------	199	10,924	22.8	21.5	51	3,376	19	480	219	11,535	20.3	19.7
W. Va-----	89	3,330	39.0	34.3	13	584	4	84	168	5,122	53.2	42.8
Wis-------	2,630	107,830	89.6	91.4	392	16,072	5,401	165,270	8,031	273,100	56.7	60.7
Wyo-------	43	1,296	100.0	100.0	2	101	35	1,027	78	2,323	100.0	100.0
Total or Average--	30,167	1,298,454	74.2	64.6	3,570	167,930	14,522	429,831	45,073	1,744,708	66.6	61.8

1/ Includes WADAM Records: Georgia, 4 herds, 912 cows; Illinois, 64 herds, 1,739 cows; Louisiana, 153 herds, 8,471 cows; Michigan, 34 herds, 1,083 cows; Montana, 6 herds, 190 cows; North Carolina, 47 herds, 2,189 cows; Washington, 1 herd, 131 cows; West Virgini 75 herds, 1,708 cows.
Total - 384 herds, and 16,423 cows.

2/ Based on last report available (1-1-63).

Table 7--TEN-YEAR SUMMARY (1954-1963)

Year	U. S. Report 1/					DHIA Production/Cow Standard Plan			Total DHIA Program	
	No. Milk Cows 2/	Milk Produced	Production/Cow Milk	Production/Cow Pct. Fat	Production/Cow Fat	Milk	Pct. Fat	Fat	No. Cows	Percent of U. S. Cows
	Thousand	Mil. Lbs.	Lbs.		Lbs.	Lbs.		Lbs.	Thousand	
1954	21,581	122,094	5,657	3.87	219	9,363	3.97	372	1,334	6.2
1955	21,044	122,945	5,842	3.85	225	9,502	3.95	375	3/ 1,781	8.5
1956	20,501	124,860	6,090	3.83	233	9,713	3.94	383	4/ 1,906	9.3
1957	19,774	124,628	6,303	3.81	240	9,894	3.93	389	2,118	10.7
1958	18,711	123,220	6,585	3.78	249	10,068	3.91	394	2,232	11.9
1959	17,901	121,989	6,815	3.76	256	10,327	3.88	401	2,439	13.6
1960	17,560	122,951	7,002	3.76	263	5/ 10,561	5/ 3.87	5/ 409	2,594	14.8
1961	17,367	125,442	7,223	3.75	271	10,796	3.87	418	2,727	15.7
1962	17,050	126,021	7,391	3.73	276	11,032	3.86	426	2,784	16.3
1963	16,538	124,783	7,545	3.72	281	11,286	3.85	434	2,823	17.1

1/ USDA Statistical Reporting Service Annual Summary, February 1964.

2/ Number of milk cows on farms during year, excluding heifers not fresh.

3/ Report of Owner-Sampler testing included for first time.

4/ Report of WADAM testing included for first time.

5/ Average of 1959 and 1961 since date of collecting data for summary changed in 1961.

COUNTIES, BY STATE, WITH 25% OR MORE COWS INCLUDED IN THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM

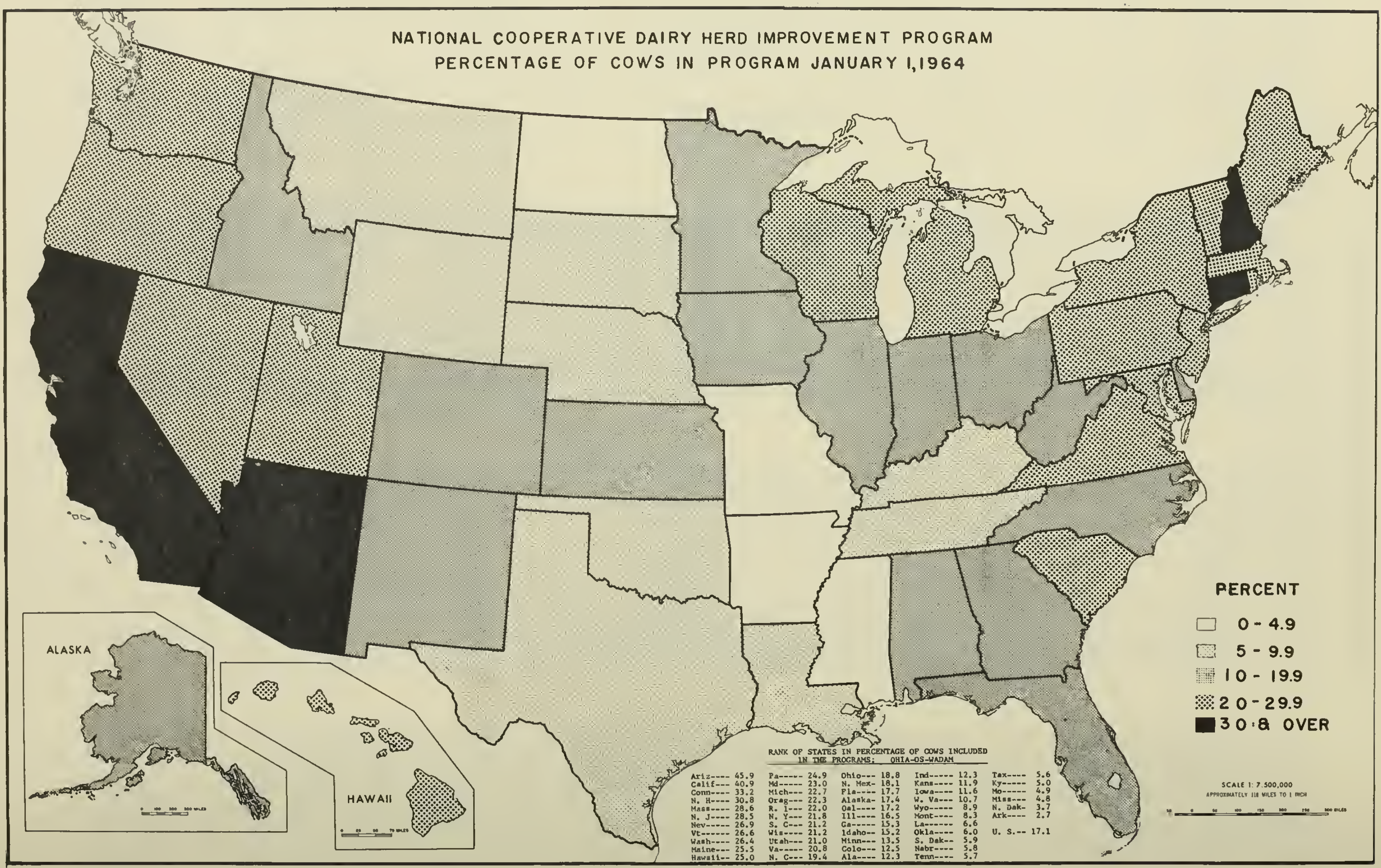
(January 1, 1964)

State	County (Name)	Cows (Pct.)
ALABAMA		
	Elmore	36
	Montgomery	33
	Talladega	33
	Russell	31
	Jefferson	26
ARIZONA		
	Pima	100
	Greenlee	65
	Maricopa	61
	Pinal	53
	Graham	26
CALIFORNIA		
	Monterey	72
	Contra Costa	67
	Kern	65
	Marin	62
	Madera	61
	San Diego	61
	Riverside	57
	Sonoma	54
	San Joaquin	51
	Solano	51
	Fresno	50
	Santa Barbara	50
	Inyo-Mono	49
	Del Norte	48
	Merced	48
	Santa Clara	46
	Stanislaus	44
	Napa	43
	Santa Cruz	41
	Shasta	40
	San Benito	39
	San Mateo	39
	Ventura	39
	Colusa	38
	Placer-Nevada	38
	Sacramento	38
	Sutter	38
	San Bernardino	37
	San Luis Obispo	36
	Tehama	35
	Humboldt	34
	Mendocino-Lake	32
	Kings	30
	Yuba	30
	Orange	26
	Los Angeles	25
COLORADO		
	Chaffee	47
	Pueblo	34
	Boulder	27
	Jefferson	27
CONNECTICUT		
	Middlesex	50
	Litchfield	43
	Tolland	40
	New Haven	30
	Windham	30
	Hartford	28
FLORIDA		
	Sarasota	58
	Orange	53
	Jefferson	50
	Manatee	50
	Putnam	48
	Osceola	44
	Seminole	43
	Highlands	42
	Gilchrist	39
	Pasco	38
	Nassau	33
	Levy	30
	Volusia	30
	Washington	30
	Dade	27
	Jackson	27
	Martin	25
GEORGIA		
	Dooly	100
	Douglas	100
	Evans	100
	Montgomery	100
	Baldwin	80
	Tattnall	80
	Houston	79
	Macon	75
GEORGIA (con't.)		
	Raburn	75
	Fayette	70
	Jefferson	70
	Rockdale	69
	Lee	66
	Newton	65
	Clarke	63
	Brooks	60
	Lincoln	60
	Carroll	57
	Turner	56
	Stewart	55
	Cook	50
	Jeff Davis	50
	Mitchell	48
	Decatur	45
	Floyd	45
	Spalding	45
	Walton	45
	Heard	43
	Jones	40
	McIntosh	39
	Sumter	39
	Effingham	36
	Worth	36
	Peach	35
	Butts	32
	Richmond	32
	Fulton	30
	Coffee	28
	Henry	27
	Thomas	26
	Bacon	25
	Colquitt	25
	Crawford	25
	Jasper	25
	Laurens	25
HAWAII		
	Oahu	30
ILLINOIS		
	Kendall	45
	Christian	41
	Stark	41
	Grundy	39
	Moultrie	38
	Champaign	33
	DuPage	32
	Effingham	30
	Logan	29
	Jasper	28
	Bond	27
	Kankakee	27
	Lake	27
INDIANA		
	Elkhart	39
	Cass	29
	Boone	28
IOWA		
	Dallas	34
	Lee	29
	Polk	26
	Scott	26
	Story	26
KANSAS		
	Finney	42
	Comanche	39
	Saline	39
	Hamilton	33
	Chase	26
	Harvey	26
	Seward	26
	Pawnee	25
LOUISIANA		
	Ascension	100
	Iberia	34
	Richland	31
	West Feliciana	31
	Franklin	28
	Grant	28
	Rapides	27
	West Carroll	27
	Ouachita	26
	Bossier	25
MAINE		
	Oxford	40
MAINE (con't.)		
	Androscoggin	34
	Cumberland	32
	York	29
	Penobscot	27
	Somerset	27
MARYLAND		
	Howard	50
	Kent	39
	Montgomery	34
	Harford	32
	Baltimore	30
	Carroll	28
	Cecil	27
MASSACHUSETTS		
	Barnstable	54
	Berkshire	38
	Essex	36
	Hampshire	33
	Plymouth	28
	Franklin	25
	Worcester	25
MICHIGAN		
	Oakland	43
	Lenawee	41
	Ingham	39
	Calhoun	36
	Livingston	35
	Eaton	34
	Jackson	34
	Monroe	34
	St. Joseph	34
	Kalamazoo	33
	Muskegon	31
	Shiawassee	31
	Clinton	30
	Washtenaw	30
	Oscoda	29
	Ionia	28
	Barry	27
	Branch	27
	Iosco	27
	Berrien	26
	Gratiot	26
	Mason	26
	Genesee	25
	Huron	25
	Saginaw	25
MINNESOTA		
	Dakota	31
	Winona	31
	Goodhue	26
	McLeod	25
NEVADA		
	Churchill	55
	Clark	49
	Douglas	35
NEW HAMPSHIRE		
	Merrimack	54
	Sullivan	42
	Cheshire	41
	Grafton	31
	Coos	29
	Belknap	28
	Hillsborough	27
NEW JERSEY		
	Burlington	37
	Somerset	35
	Hunterdon	32
	Gloucester	29
	Sussex	28
	Morris	25
	Salem-Cumberland	25
	Warren	25
NEW MEXICO		
	Dona Ana	68
	Bernalillo	35
	Sandoval	28
NEW YORK		
	Long Island	50
	Ontario	49
	Genesee	46
NEW YORK (con't.)		
	Dutchess	44
	Tompkins	40
	Columbia	39
	Orleans	36
	Onondaga	34
	Wayne	33
	Monroe	32
	Schoharie	32
	Madison	31
	Schuyler	30
	Seneca	30
	Chenango	29
	Cortland	28
	Chautauqua	27
	Wyoming	27
	Tioga	26
	Erie	25
NORTH CAROLINA		
	Bertie	100
	Carteret	100
	Richmond	100
	Swain	100
	Washington	100
	Martin	99
	Jones	98
	Cumberland	94
	Perquimans	91
	Orange	81
	Halifax	80
	Brunswick	76
	Wilson	70
	Warren	69
	Hyde	68
	Jackson	65
	Lenoir	65
	Pitt	64
	Columbus	62
	Casewell	60
	Granville	59
	Wake	59
	Watauga	59
	New Hanover	56
	Pamlico	56
	Scotland	56
	Carven	55
	Nash	55
	Guilford	54
	Person	54
	Wayne	54
	Rockingham	53
	Greene	52
	Edgecombe	51
	Pender	50
	Onslow	49
	Caldwell	47
	Gaston	46
	Hoke	46
	Duplin	43
	Catawba	42
	Sampson	42
	Cleveland	40
	Johnston	39
	Beaufort	38
	Lee	38
	Bladen	37
	Union	35
	Durham	34
	Northampton	34
	Wilkes	34
	Macon	33
	Randolph	32
	Chatham	31
	Harnett	30
	Mecklenburg	30
	Stanley	30
	Yadkin	27
	Davie	25
	Haywood	25
	Henderson	25
	Madison	25
OHIO		
	Marion	38
	Medina	38
	Logan	35
	Champaign	34
	Clarke	32
	Erie	32
	Allen	31
	Henry	31
	Auglaize	30
	Fulton	30

COUNTIES, BY STATE, WITH 25% OR MORE COWS INCLUDED IN THE NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM (con't.)

(January 1, 1964)

State	County (Name)	Cows (Pct.)
OHIO (con't.)		
	Miami	30
	Lorain	29
	Columbiana-Mahoning	28
	Shelby	26
	Ashland	25
	Huron	25
	Seneca	25
	Wayne	25
OREGON		
	Josephine	32
	Deschutes	30
	Lane	29
	Washington	29
	Clackamas	25
PENNSYLVANIA		
	Montgomery	43
	Clinton	41
	Bucks	37
	Blair	36
	Dauphin	36
	Union	36
	Allegheny	34
	Montour	33
	Perry	32
	Potter	32
	Mifflin	31
	Northumberland	31
	Centre	29
	Lancaster	29
	Luzerne	29
	Wyoming	29
	Chester	28
	Cumberland	28
	Huntington	28
	Juniata	28
	Lebanon	28
	Lehigh	28
	McKean	27
	Schuylkill	27
	Sullivan	27
	Berks	26
	Northampton	26
	Bradford	25
	Tioga	25
PUERTO RICO		
	Bayamon	32
	Carolina	30
RHODE ISLAND		
	Washington	34
	Kent	32
	Newport	25
SOUTH CAROLINA		
	Sumter	53
	Orangeburg	44
	Saluda	44
	Bamberg	43
	Lee	42
	Calhoun	40
	Marlboro	34
	Colleton	33
	Beaufort	32
	Newberry	32
	Jasper	29
	Edgefield	27
SOUTH DAKOTA		
	Lawrence	44
	Butte	40
	Custer	34
	Pennington	26
UTAH		
	Wasatch	41
	Summit	38
	Salt Lake	31
	Morgan	30
	Weber	25
VERMONT		
	Bennington	44
	Windham	39
	Addison	36
	Windsor	35
	Washington	31
	Rutland	29
	Franklin	26
	Orange	26
VIRGINIA		
	Northampton	76
	Roanoke	63
	Clarke	59
	Powhatan	55
	James City	52
	City of Chesapeake	50
	Southampton	47
	City of Va. Beach	46
	Loudoun	45
	Nansemond	42
	Culpeper	40
	Prince George	39
	Franklin	38
	Orange	38
	Dinwiddie	37
	Madison	37
	Bath	36
	Prince William	36
	Amelia	35
	Isle of Wight	35
	Pulaski	34
	Rockingham	34
	Warren	33
	Wise	33
	Fauquier	32
	Fairfax	31
	Henrico	30
	Spotsylvania	30
	Augusta	29
	Charlotte	28
	King William	28
	Brunswick	25
	Hanover	25
WASHINGTON		
	Jefferson	60
	Grays Harbor	58
	Pierce	47
	Wahkiakum	45
	Island	41
	Skagit	41
	Spokane	37
	Kittitas	36
	Pend Oreille	34
	Grant	33
	King	33
	Kitsap	33
	Thurston	33
	Walla Walla	31
	Clallam	27
WEST VIRGINIA		
	Mason	28
WISCONSIN		
	Kenosha	40
	Winnebago	39
	Kewaunee	34
	Manitowoc	31
	Rock	30
	Waukesha	30
	Calumet	29
	Outagamie	29
	Racine	29
	Walworth	29
	Barron	28
	Florence	28
	St. Croix	28
	Green Lake	27
	Brown	25
	Dunn	25
	Jefferson	25
	Sheboygan	25



NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM
PERCENTAGE OF COWS IN PROGRAM JANUARY 1,1964

RANK OF STATES IN PERCENTAGE OF COWS INCLUDED IN THE PROGRAMS: OHIA-OS-WADAM

Ariz	45.9	Pa	24.9	Ohio	18.8	Ind	12.3	Tax	5.6
Calif	40.9	Md	23.0	N. Mex	18.1	Kans	11.9	Ky	5.0
Conn	33.2	Mich	22.7	Pla	17.7	Iowa	11.6	Mo	4.9
N. H	30.8	Orag	22.3	Alaska	17.4	W. Va	10.7	Miss	4.8
Mass	28.6	R. I	22.0	Oal	17.2	Wyo	8.9	N. Dak	3.7
N. J	28.5	N. Y	21.8	Ill	16.5	Mont	8.3	Ark	2.7
Nev	26.9	S. C	21.2	Ga	15.3	La	6.6		
Vt	26.6	Wis	21.2	Idaho	15.2	Okla	6.0	U. S.	17.1
Wash	26.4	Utah	21.0	Minn	13.5	S. Dak	5.9		
Maine	25.5	Va	20.8	Colo	12.5	Nebr	5.8		
Hawaii	25.0	N. C	19.4	Ala	12.3	Tenn	5.7		

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA OWNER SAMPLER WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter
ARS-44-141
(Vol. 40, No. 3)

April 1964

INCREASING THE USEFULNESS OF DHIA RECORDS

The principle byproduct of dairy recordkeeping is the 305-day production record of the individual cow. These individual records, as used by dairymen, DHIA supervisors, county agricultural agents, State extension specialist and researchers, the AI industry, and the USDA are important and essential tools for herd improvement.

The lactation records from DHIA herds are routinely forwarded by the States to the Animal Husbandry Research Division, USDA, for use in sire evaluation and research. In order to obtain the greatest possible accuracy in these sire summary and research efforts, approximately 20 percent of the automatic data processing (ADP) activities are devoted to editing incoming and previously reported records. These ADP edits involve (1) checking for apparent erroneous data in current records received since the previous sire evaluation and (2) checking on the consistency of current records as compared to data previously reported for the same animal. As a result, inconsistent records (either current or previously reported or both) are excluded from master files, tabulated, and returned to the respective States on Form DHIA-1060. After correction or verification, the records are returned to the master files.

A total of 484,318 DHIA lactation records were reported to the USDA from November 1, 1963, to February 1, 1964. Of these, editing procedures resulted in the exclusion of 40,974

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Issued May 1964

or 8.4 percent. The relative frequency of the different types of errors or conflicts is shown in table 1. The alphabetic codes are used to classify types of conflicts and are further described on Form DHIA-1060-A, a copy of which is shown on pages 9 and 10. Of the 24 types of conflicts shown in table 1, only the first seven appear to be significant in terms of frequency and collectively represent 92.6 percent of all errors. These common types of conflicts are illustrated on page 11 and are as follows:

Code D (Birth date)

The most common source of conflict was birth date which represented 22.5 percent of all records in question. An example of the code D type of error is shown on page 11. In many instances this conflict in birth date represents a difference of only one day, month, or year and usually results from a recording error.

The frequency of conflicts in birth date is high largely because the apparent error in the current record results in the removal of all previously reported lactations of the cow in question. An average of three to four records previously reported are removed from master files for each current record involved.

Code F (Possible twins)

When two cows are reported with the same parents and birth date, they are twins, or an error has been made in identifying and reporting a combination of cow, sire, and dam number and birth date, or any one of these. Past experience indicates that these rejects represent erroneous reporting rather than twins more than 50 percent of the time. When cows in question are verified as being twins, the corresponding records are returned to the master files and not removed again for this reason.

Code F conflicts often result from legitimate changes in the eartag numbers of cows. In such cases, it is recommended that lactations reported after a change in eartag number be either positively identified as such or reported with the original eartag number. The latter is preferred in reporting records to the USDA.

An example of code F conflicts, representing 18.4 percent of all rejects, is shown on page 11.

Code M (Eartag identification)

Errors or conflicts in eartag number represent 15.4 percent of all rejects. These usually represent errors in identifying and reporting eartags, and in many instances, involve the use of invalid numbers.

Code Q (Calving date)

Apparent conflicts in calving date represent 14 percent of all rejects. A portion of these questionable records result from the sale of cows in milk from one tested herd to another which results in the reporting of two lactations with the same calving date but with different values for days in milk. Edits are also made for calving interval less than 9 months in duration. These types of rejects can and will be reduced by further ADP editing, and it is expected that code Q types of conflicts will decrease in frequency in the future. An example of this type of error is shown on page 11.

Code B (Dam number)

Approximately 75 percent of all code B rejects appear to result from errors in recording the eartag or registration number of the dam in later records of cows. For example, the dam of a cow was previously reported in three records as number 4264059, but as 4264095 in a current lactation. Another example of code B type of error is shown on page 11.

Code A (Registered sire number)

The majority of code A conflicts represent current records which do not result in rejecting previously reported information. Consequently, the frequency of questionable sire identification among current records is higher than the 7.4 percent reject-rate shown in table 1. Many of these rejects represent recording errors in which the registration number of the sire is too large or too small for the appropriate breed. Occasionally, the source of error is in breed identification.

Canadian registration numbers should be prefaced by an 01. For example, a registered Canadian Holstein with number 123456 should be recorded and reported to the USDA as 010123456.

A general realization of the range in U. S. registration numbers for cows having current records can be helpful in reducing obvious errors. The normally expected limits are shown below. One would not find, for example, a current record made by a registered Holstein with a number other than 7 digits in length. Further, this registration number would begin with either a 3, a 4, or a 5. The registration numbers in currently reported records will usually be between the limits shown below. Exceptions will include Canadian registration numbers, cows registered prior to 1950, and sires and dams registered prior to 1945.

Expected range in U. S. registration numbers of cows and sires having current records

	Cow		Dam	
Breed	Reg. in 1950	Reg. in 1963	Reg. in 1945	Reg. in 1960
Ayrshire	400000	650000	300000	620000
Guernsey	1200000	2200000	900000	2100000
Holstein	3100000	5900000	2300000	4900000
Jersey	1700000	2500000	1400000	2400000
Brown Swiss	220000	450000	140000	410000

	Sire	
Breed	Reg. in 1945	Reg. in 1960
Ayrshire	80000	123000
Guernsey	379000	553000
Holstein	956000	1400000
Jersey	460000	590000
Brown Swiss	72000	139000

Code H (Identification of parents)

Code H rejects may involve either sire or dam conflicts in identification or both. These conflicts may be the source of error, or different cows may be involved. In some instances, copy errors are made in identifying parents, especially when cows move from one herd to another. The frequency of code H rejects is 4.7 percent.

Often it is not possible to correctly identify the source of error among rejected records. An apparent code Q reject suggests an error in calving date and, for example, may result from two lactation records of a cow having fresh dates differing by only 6 months but with a 305-day initial record. In this instance, it is quite possible that two cows are involved and that an error was made in a cow identification rather than calving date. Similar interrelationships between possible source of conflicts occur in each of the more frequent error codes. In over 90 percent of the rejected records, however, the source of error can be traced to identification number (cow, sire, and dam), birth date, and/or calving date. These conflicts can be eliminated by the following:

1. Correct initial identification and reporting of the eartag or registration number of cow, sire, and dam.
2. Consistent reporting of identification in later records of cows.
3. Correct and consistent reporting of birth dates.
4. Correct reporting of calving dates.

Another inadequacy in the data reported is not specificially shown in table 1. Approximately 21 percent of all DHIA lactation records in the master files have no sire identification. They are used as herdmate information, but even in this respect they are not entirely satisfactory since paternal half-sisters should be excluded from herdmates.

In addition to the above-mentioned problem areas, special attention should be devoted to increased accuracy in reporting conditions-affecting-record (CAR) and status codes. Abnormal conditions and disposals should be reported with care.

Further editing efforts by the USDA are under way--in order to use ADP procedures to (1) make logical decisions in correcting obvious recording errors, and (2) remove from master files only those records that have not been consistently reported in the past. The major and important role in the correct reporting of DHIA records, however, remains the responsibility of each supervisor. Further efforts in this important part of dairy recordkeeping will benefit all who make effective use of the information from the Nation's 2,010,144 DHIA cows.

OWNER-SAMPLER HERD SUMMARIES

The first summary of Owner-Sampler herd averages was made in March 1964, and the results are tabulated in table 2. A total of 423,545 cows in 14,761 herds were represented with an average production of 10,606 pounds of milk and 396 pounds of fat. These averages are shown by State in table 2 and represent the 1962-63 testing year.

Complete reports were available from only, 4,615 Owner-Sampler herds. They represented 136,781 cows averaging 10,785 pounds of milk and 402 pounds of fat. Other reported national averages per cow were 1,200 pounds live weight, 83 percent days in milk, 3,700 pounds concentrates fed, 8,300 pounds succulent forage fed, 4,600 pounds dry forage fed, 147 days on pasture, 114 feeding index, $460 for value of product, $113 for cost of concentrates, $219 for feed cost, $241 for income over feed cost, and $2.03 for feed cost per hundred weight of milk.

9,413 SIRES SUMMARIZED IN MARCH 1964

A total of 9,413 sires were summarized in March 1964, 9,359 of which included progeny with production—listed herdmates. The 2,211 AI sires represented 591,577 progeny with herdmates and averaged 268 daughters per sire. The 7,148 non-AI sires represented 110,610 progeny with herdmates and averaged 15 daughters per sire.

Included in the summary were 950 bulls having 200 or more AI progeny indicated in previous evaluations. Consequently, many of these summaries represent bulls that have been inactive for some time.

Forty-seven percent of the AI bulls summarized maintained or increased milk yield and 50 percent maintained or increased fat yield. The corresponding values for non-AI bulls were 45 and 49 percent, respectively. As shown in tables 3 and 4, both AI and non-AI progeny consistently exceed their herdmates in percentage of fat test. These summaries continue to indicate that, in general, sires have been selected more for percentage of fat, or possibly fat yield, than for milk yield.

A total of 30,312 sire records were sent to the cooperating States. These, and further results from the March 1964 summary, are shown in table 5.

NOTE

The January 1963 milk production in the U. S. was 10,066 million pounds and was the first month since November 1962 that milk production was equal to or greater than a year earlier. On February 1, 1963, reporters fed 9.1 pounds of concentrates per cow or 2 percent more than 8.9 pounds fed a year earlier and 1.4 pounds more than the 1958-62 average of 7.7 pounds for the date.--From USDA, Statistical Reporting Service (2-64)

Table 1.--Relative frequency of lactation rejects

Code	Type	Frequency Pct.
D	Birth date	22.5
F	Possible twin	18.4
M	Eartag identification	15.4
Q	Calving date	14.0
B	Registered dam number	10.2
A	Registered sire number	7.4
H	Identification of parents	4.7
E	Breed	1.4
I	Cow number	1.3
P	Blanks and/or alphabetic production	1.3
R	Unusual percent test	1.3
T	Production	0.6
V	Days in milk	.4
J	Same identification numbers	.3
W	Identification conflicts	.3
C	Registration number (cow, sire, or dam)	.2
Y	(USDA use only)	.2
G	State code	.1
K	(USDA use only)	.0
N	(USDA use only)	.0
O	Conflicting corrections (identification)	.0
S	Conflicting corrections (production)	.0
U	Days carried calf	.0
X	Unusual number of records by cow	.0
	Total	100.0

DHIA-1060-A (5-61)

INTERPRETATION AND USE OF ERROR CODES FOR LACTATION RECORDS ON FORM DHIA-1060

Lactation records containing errors, conflictions or omissions are listed by the EDPM-IBM-705-III on Form No. 1060 and returned to State Extension Dairymen. Records in error are listed by Herd Code making it possible for the Extension Dairyman to return the questioned records to the Supervisor for correction or verification. These lists are prepared from an edit run of the current data reported since the last Production Run and from updating the Master File of lactation records.

An alphabetic code is listed with the record in the column "Err Code," which indicates the first reason for which the record was rejected. A record may contain other errors as the machine stopped checking once an error was detected. Therefore, the entire record should be checked.

In cases where one record is in conflict with other records in the Master File, all related records have been removed from the file and listed. All records in the group must be checked as the discrepancy may be in one or more of the related records instead of the current report.

> NOTE: All records listed have been removed from the Master File and, therefore, cannot be used in proving sires until the records have been corrected and/or verified and are returned for re-entry into the Master File.

Corrections and notes should be made on the lists. The corrected lists should be returned to the State Extension Dairyman for forwarding to the Dairy Cattle Research Branch, ARS, USDA.

The alphabetic codes are listed below with an explanation of the probable error, together with a suggested action for correction:-

Code	Interpretation	Suggested Action
A.	Registered Sire Number	
	1. Zero or conflicting numbers; or, 2. Number higher or lower than high or low number for Breed	Give correct registration number for Sire
B.	Registered Dam Number	
	1. Zero or conflicting numbers; or, 2. Number higher or lower than high or low number for Breed (including dam of eartagged cow) 3. Alphabet in registered number of dam of eartagged cow.	Give correct registration number for Dam
C.	Registered Number (Cow, sire or dam)	
	1. Number reported with blanks and/or alphabetic characters (except Milking Shorthorn or Red Dane)	Give correct registration number
D.	Birthdate	
	1. Month - Zero or higher than 12; or 2. Day - Zero (registered identification) or higher than 31; or, 3. Year - Zero; or, 4. Month or Year contains blank or alphabetic characters; or, 5. Different birthdate reported for same cow	Give correct date of birth
E.	Breed	
	1. Zero; or, 2. Different breed reported for registered cow, sire and/or dam; or, 3. Different breed of dam reported for same cow	Give correct breed
F.	Possible Twin	
	1. Equal birthdates for 2 or more daughters of same dam; or, 2. Less than 9 months between birthdates of 2 or more daughters of same dam	Verify or correct cow number and/or dam number and birthdate
G.	State Code - Identification and/or herd code	
	1. Erroneous State code; or,	Give correct State Code
	2. Zero herd code (birthdate after 10-59)	Give correct Herd Code

Code	Interpretation	Suggested Action
H.	Identification 1. Two or more errors; or, 2. Conflicting identification on two or more records; or, 3. Registered dam number higher than cow number (except Milking Shorthorn)	Check complete identification Check cow and dam numbers
I.	Cow Number 1. Number lower than table of registrations; or, 2. Cow number higher than last number issued by Breed Association; or, 3. Record for Milking Shorthorn, Red Dane or Red Poll coded as CHB	Check birthdate and/or cow number and or breed
J.	Equal Identification Number 1. Cow, sire and/or dam; or, 2. Sire and dam	Check all identification numbers
M.	Eartag Identification 1. Private tag; or, 2. Disease tag (birthdate later than 1-57); or, 3. Incorrect number; or, 4. Number contains blanks 5. Class Milking Shorthorn or Red Dane	Give correct identification number
N.	Cross Reference Number (For use of USDA office only)	No action
O.	Conflicting Corrections - Identification	Verify or correct complete identification
P.	Blanks and/or alphabet in lactation report	Give correct lactation data
Q.	Calving Date 1. Month - Zero or higher than 12; or, 2. Day - Higher than 31; or, 3. Year - Zero or conflicts with current date; or, 4. Calving date earlier than birthdate; or, 5. Less than 9 months between lactations; or, 6. Less than 14 months between birthdate and calving date	Give correct dates
R.	Percent Test 1. Too high or low for breed	Verify or correct milk and butterfat production, and Breed
S.	Conflicting Corrections - Production	Give correct production data
T.	Production 1. Equal production with unequal calving dates; or, 2. 2x and 3x milking reported with same calving date; or, 3. Zero milk or fat	Give correct calving and/or production data
U.	Less than 30 days between days carried calf and days in milk	Give correct days carried calf
V.	Days in Milk 1. Zero or higher than 305; or, 2. Days milked 3x higher than 31; or, 3. Days in milk lower than 3x milking days	Give correct days in milk or days milked 3x
W.	Identification conflicts with data from Breed Association	Verify or give correct identification data
X.	More than 20 complete records for same cow; or, More than 5 incomplete records for same cow	Check identification and records
Y.	(For use of USDA office only)	No action

ILLUSTRATIONS OF LACTATION RECORD REJECTS

HERD CODE	COW		SIRE		DAM		DATE OF BIRTH			DATE FRESH			NUMBER DAYS				MILK 10 LB.	% TEST	FAT LB.	C. A. R.	BO. CWT.	TYPE SC.	FEED. INDEX	HERD AV.		ERR. CODE	H.T	1/
	NUMBER	BR.	NUMBER	BR.	NUMBER	BR.	MO.	DAY	YR.	MO.	DAY	YR.	DRY	C.C.	3X	IN MILK								MILK 10 LB.	FAT LB.			
29040014	29WAE0326	3	001189195	3	29ZZG6899	3	12	05	59	09	20	63	00	00	00	263	0800	3.6	0284	0	100		000	0000	000	D		*3c
29040014	29WAE0326	3	001189195	3	29ZZG6899	3	03	26	60	09	03	62	00	00	00	256	0489	4.5	0218	0	080		000	0000	000	D		3c
29559017	2397202	4	000499207	4	002109415	4	08	16	58	08	18	62	04	00	00	305	1044	5.1	0534	0	090		111	0000	000	F		3c
29559017	29WAA2697	4	000499207	4	002109415	4	08	16	58	09	12	60	00	00	00	305	0824	5.1	0420	0	060		058	0000	000	F		*3c
29750011	29AAQ0813	3	000000000	0	2900Q0157	3	02	11	56	04	16	59	00	00	00	294	1160	3.8	0443	0	000		000	0000	000	M		3c
29750011	29AAQ0813	3	000000000	0	2900G0157	3	02	11	56	04	29	62	00	00	00	289	1311	4.3	0559	0	120		000	0000	000	M		3c
29050009	004182170	3	001117014	3	003757961	3	12	06	55	12	29	61	00	00	00	269	1317	3.2	0426	0	140		007	0000	000	Q		*3c
29050009	004182170	3	001117014	3	003757961	3	12	06	55	01	22	62	12	00	00	245	1185	3.2	0385	0	120		000	0000	000	Q		3c
29750087	004426177	3	001123999	3	003519538	3	08	08	57	06	22	60	00	00	00	305	1474	3.5	0517	0	000		000	0000	000	B		*3c
29750087	004426177	3	001123999	3	003519518	3	08	08	57	10	21	61	00	00	00	305	1689	3.7	0624	0	000		000	0000	000	B		3c
29149063	005113043	3	010255164	3	011114297	3	04	10	57	08	14	61	07	00	00	276	0997	3.5	0345	0	130		000	0000	000	A		*3c
29149063	005113043	3	001261368	3	011114297	3	04	10	57	08	08	62	08	00	00	298	1046	3.4	0361	0	130		000	0000	000	A		3c
29090135	29WAA3702	4	000506697	4	290194071	8	11	16	56	08	08	61	00	00	00	297	0835	4.2	0352	0	000		000	0000	000	H		*3c
29090135	29WAA3702	2	000506697	2	29WAK7222	3	11	15	56	09	06	62	00	00	00	305	0886	5.6	0492	0	100		000	0000	000	H		3c

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1/ Codes used by USDA where 3c represents 1963, third evaluation and * denotes a master file or previously reported record.

Table 2.--Summary of the 1962-63 Owner-Sampler cow-year production averages, by State 1/

State		Herds	Cows	Average Production		
Code	Name			Milk	Fat	Fat
		No.	No.	Lbs.	Pct.	Lbs.
11	Maine	75	2,374	10,668	3.9	411
12	New Hampshire	51	1,381	9,913	4.0	392
13	Vermont	314	10,713	8,994	4.1	366
14	Massachusetts	60	1,772	10,623	4.0	420
15	Rhode Island	5	225	8,840	4.2	369
16	Connecticut	57	1,920	10,967	3.9	429
21	New York	1,802	60,056	11,263	3.6	411
22	New Jersey	14	433	10,452	4.0	413
23	Pennsylvania	1,019	27,339	10,361	3.8	397
31	Ohio	546	12,711	10,906	3.8	411
32	Indiana	177	4,596	10,608	3.9	414
33	Illinois	264	7,558	10,905	3.8	412
35	Wisconsin	8,624	246,415	10,564	3.7	392
41	Minnesota	663	16,555	10,646	3.7	390
42	Iowa	722	17,188	10,345	3.7	387
43	Missouri	7	172	8,928	4.0	358
45	North Dakota	12	211	9,543	3.7	349
46	South Dakota	15	446	9,458	3.5	335
47	Nebraska	25	894	10,563	3.6	378
48	Kansas	61	1,705	9,899	3.7	369
50	Delaware	17	423	10,100	4.0	408
51	Maryland	71	2,784	10,287	3.8	394
52	Virginia	62	1,851	10,844	3.8	412
54	West Virginia	18	618	8,367	4.0	334
55	North Carolina	18	624	9,678	3.9	380
56	South Carolina	3	234	8,142	3.6	293
58	Florida	3	219	9,395	4.3	405
61	Kentucky	1	19	10,052	3.6	363
63	Tennessee	1	14	8,456	4.3	366
64	Alabama	3	176	9,180	3.9	356
65	Mississippi	1	14	6,567	3.7	242
71	Arkansas	15	458	9,340	3.8	358
73	Oklahoma	5	198	9,071	3.8	341
74	Texas	3	153	8,982	3.4	305
81	Montana	5	205	10,803	3.9	421
82	Idaho	4	195	11,783	3.6	429
83	Wyoming	5	185	9,783	3.6	349
84	Colorado	6	183	10,961	3.7	402
86	Arizona	4	268	11,947	3.8	454
87	Utah	1	22	13,917	3.7	512
92	Oregon	2	41	9,896	4.3	422
Total or average		14,761	423,545	10,606	3.7	396

1/ Includes all production data reported.

Table 3.--Performance of AI sires summarized in March 1964, as measured by the production of progeny and their herdmates

Breed	Sires				Daughters Average Production			Herdmates Average Production		
	Total	Milk Yield Maintained or increased	Fat Yield Maintained or increased	Daughters with Herdmates	Milk	Fat	Fat	Milk	Fat	Fat
	No.	Pct.	Pct.	No.	Lbs.	Pct.	Lbs.	Lbs.	Pct.	Lbs.
Ayrshire	65	61.5	58.5	9,716	10,340	4.11	425	10,175	4.10	417
Guernsey	398	46.2	49.7	47,659	8,776	4.82	423	8,848	4.79	424
Holstein	1,351	46.3	49.6	498,996	12,806	3.68	471	12,877	3.67	472
Jersey	266	48.9	52.6	27,502	8,323	5.20	433	8,316	5.19	432
Brown Swiss	109	47.7	52.3	7,506	11,197	4.12	461	11,072	4.10	454
Milking Shorthorn	20	45.0	60.0	192	8,775	3.90	342	8,777	3.83	336
Red Dane	2	50.0	50.0	6	11,370	3.88	441	11,482	3.72	427
Overall	2,211	47.1	50.5	591,577	11,352	4.01	455	11,396	3.99	455

Table 4.--Performance of non-AI sires summarized in March 1964, as measured by the production of progeny and their herdmates

Breed	Sires				Daughters Average Production			Herdmates Average Production		
	Total	Milk Yield Maintained or increased	Fat Yield Maintained or increased	Daughters with Herdmates	Milk	Fat	Fat	Milk	Fat	Fat
	No.	Pct.	Pct.	No.	Lbs.	Pct.	Lbs.	Lbs.	Pct.	Lbs.
Ayrshire	258	48.4	54.7	3,371	9,961	4.10	408	9,973	4.06	405
Guernsey	1,340	45.2	49.9	19,210	8,840	4.84	428	8,903	4.82	429
Holstein	4,332	45.2	48.5	70,690	12,958	3.67	475	13,082	3.65	478
Jersey	908	42.0	44.6	13,497	8,155	5.22	426	8,279	5.21	431
Brown Swiss	240	50.4	55.8	3,120	11,089	4.11	456	11,094	4.08	453
Milking Shorthorn	67	41.8	55.2	700	8,809	3.79	334	8,782	3.78	332
Red Poll	1	100.0	100.0	11	9,560	4.03	385	8,213	4.02	330
Other	2	50.0	0.0	11	9,440	3.93	371	9,735	4.04	393
Overall	7,148	45.0	48.8	110,610	11,365	4.01	456	11,468	3.99	458

TABLE 5.--NUMBER OF SIRE RECORDS SUMMARIZED 03-64, BY STATE AND BREED

STATE	AYRSHIRE	GUERNSEY	HOLSTEIN	JERSEY	BR. SWISS	SHORTHORN	RED DANE	OTHER	RED POLL	TOTAL
MAINE ----------	32	65	286	52	12	4				451
NEW HAMPSHIRE --	54	60	325	62	14	5				520
VERMONT --------	66	102	574	171	34	5				952
MASSACHUSETTS --	55	106	527	97	34	1				820
RHODE ISLAND ---	26	27	179	27	2					261
CONNECTICUT ----	54	160	508	68	33					823
NEW YORK -------	105	243	1,621	187	59	3	1	2		2,221
NEW JERSEY -----	11	141	565	60	42					819
PENNSYLVANIA ---	97	425	1,316	152	54	8				2,052
OHIO -----------	27	165	546	134	52	5				929
INDIANA --------	17	128	414	87	45	5				696
ILLINOIS -------	39	217	675	103	78	12			1	1,125
MICHIGAN -------	19	146	867	107	52	8	2			1,201
WISCONSIN ------	30	252	1,212	93	99	16				1,702
MINNESOTA ------	53	163	827	90	72	21				1,226
IOWA -----------	56	163	761	127	113	26				1,246
MISSOURI -------	1	107	353	77	19	7				564
NORTH DAKOTA ---	1	19	181	3	20	3				227
SOUTH DAKOTA ---	11	11	212	17	29					280
NEBRASKA -------	6	75	327	23	41	8				480
KANSAS ---------	39	83	424	53	44	13				656
DELAWARE -------	17	44	223	12	13					309
MARYLAND -------	46	188	778	50	49	4				1,115
VIRGINIA -------	40	199	718	70	28	3				1,058
WEST VIRGINIA --	20	46	306	34	2					408
NORTH CAROLINA -	31	164	486	111	30	1				823
SOUTH CAROLINA -	8	158	282	83	27	1				559
GEORGIA --------	20	79	331	64	28					522
FLORIDA --------	10	152	179	86	17					444
KENTUCKY -------	3	54	323	76	14					470
TENNESSEE ------	7	120	233	141	24	5				530
ALABAMA --------	11	88	207	91	12	2				411
MISSISSIPPI ----	15	74	77	100	9					275
ARKANSAS -------	5	32	89	34	2	5				167
LOUISIANA ------		87	80	46	5					218
OKLAHOMA -------	16	43	206	50	13	12				340
TEXAS ----------	24	53	335	115	33					560
MONTANA --------	2	20	56	6	14					98
IDAHO ----------	3	70	194	68	14	7				356
WYOMING --------		3	32							35
COLORADO -------	13	60	217	36	36	2				364
NEW MEXICO -----		49	60	17						126
ARIZONA --------	1	51	153	17	8					230
UTAH -----------	4	50	238	36	4					332
NEVADA ---------		9	15	27						51
WASHINGTON -----	17	127	268	84	17	4				517
OREGON ---------	4	93	190	113	20	4				424
CALIFORNIA -----	2	80	159	47	1					289
PUERTO RICO ----			20							20
HAWAII ---------			3							3
ALASKA ---------			4		3					7
TOTAL ----------	325	1,746	5,713	1,185	350	89	2	2	1	1/ 30,312 2/ 9,413

1/ Represents the number of individual sire records sent to States.
2/ Represents the number of sires summarized.

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA OWNER SAMPLER WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-144
(Vol. 40, No.4)

Dairy-Herd-Improvement Letter

May 1964

U.S. ARTIFICIAL INSEMINATION (AI) PARTICIPATION REPORT FOR 1963

A total of 7,673,582 cows were bred artificially in the U.S. in 1963. Dairy to dairy and beef to beef inseminations were in the amount of 6,468,545 and 235,289 cows, respectively. Of the 7,438,293 dairy cows' total, 13.0 percent, or 969,748, represented inseminations of beef bulls.

The AI participation report by State shows that nationally 41.2 percent of all cows and heifers bred for dairy purposes were bred artificially, an estimated 10.7 percent of which were registered. The top 10 States in number and percentage of dairy cows bred artificially by dairy bulls are as follows:

	Number of dairy cows bred artificially	
1.	Wisconsin	1,195,354
2.	New York	610,432
3.	Minnesota	580,563
4.	Pennsylvania	529,627
5.	California	356,365
6.	Michigan	315,842
7.	Ohio	284,142
8.	Iowa	230,729
9.	Illinois	208,213
10.	Indiana	143,845

	Percent of all dairy cows	
1.	Alaska	68.6
2.	Hawaii	66.3
3.	Connecticut	62.9
4.	Pennsylvania	61.7
5.	Washington	59.7
6.	Wisconsin	58.7
7.	Florida	57.1
8.	Maine	56.2
9.	New Hampshire	56.1
10.	New Jersey	54.9

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JUL 15 1964
UNIVERSITY OF ILLINOIS

A total of 2,140 dairy and 398 beef bulls were reported in service as of January 1, 1964. Also reported were inseminations to 620 hogs and 309 goats.

The status of AI in cattle since 1939 shows that an estimated 621,141 dairy herds received AI service in 1963. This is lower than the 862,150 herds reported for 1962 since earlier estimates represented membership enrollment rather than herds serviced. Approximately 50 percent of all dairy herds in the U.S. were serviced entirely or in part by AI. An average of 12 dairy cows per herd serviced were bred artificially.

Because of incomplete reporting, some of the tabular material presented in this report are estimations based on averages from complete reports. The report does not include several strictly beef operations. As a result, beef to beef inseminations in the U.S. were somewhat greater than 235,289.

The accompanying map illustrates AI density in the U.S.

Issued June 1964

STATUS OF ARTIFICIAL-BREEDING PROGRAM IN THE UNITED STATES 1939-64

Year	Studs	Sires in service				Herds 1/	Dairy cows bred		Beef cows bred to beef bulls	Total cattle bred	Cows bred per sire
		Dairy	Beef	Total	Average per stud		to dairy bulls	to beef bulls			
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1939	7	-	-	33	4.7	646	-	-	-	7,359	228
1940	25	-	-	138	5.5	2,971	-	-	-	33,977	246
1941	35	-	-	237	6.8	5,997	-	-	-	70,751	299
1942	46	-	-	412	9.0	12,118	-	-	-	112,788	274
1943	59	-	-	574	9.7	23,448	-	-	-	182,524	318
1944	56	-	-	657	11.7	28,627	-	-	-	218,070	332
1945	67	-	-	729	10.9	43,998	-	-	-	360,732	495
1946	78	-	-	900	11.5	73,293	-	-	-	537,376	597
1947	84	-	-	1,453	17.3	140,571	-	-	-	1,184,168	815
1948	91	-	-	1,745	19.2	224,493	-	-	-	1,713,581	982
1949	90	-	-	1,940	21.6	316,177	-	-	-	2,091,175	1,078
1950	97	-	-	2,104	21.7	409,300	-	-	-	2,619,555	1,245
1951	94	-	-	2,187	23.3	548,300	-	-	-	3,509,573	1,605
1952	94	-	-	2,324	24.7	671,100	-	-	-	4,295,243	1,848
1953	96	-	-	2,598	27.1	755,000	-	-	-	4,845,222	1,865
1954	93	-	-	2,661	28.6	805,000	-	-	-	5,155,240	1,937
1955	79	-	-	2,450	31.0	845,900	-	-	-	5,413,874	2,210
1956	79	-	-	2,553	32.3	900,400	-	-	-	5,762,656	2,257
1957	75	-	-	2,651	35.3	946,000	-	-	-	6,055,982	2,284
1958	71	-	-	2,676	37.7	975,372	-	-	-	6,645,568	2,483
1959	64	-	-	2,460	38.4	930,059	-	-	-	6,932,294	2,816
1960	62	-	-	2,544	41.0	910,000	-	-	-	7,144,679	2,808
1961	56	-	-	2,486	44.4	863,781	7,047,148	2/435,592	-	7,482,740	3,010
1962	56	2,036	420	2,456	43.9	862,150	6,837,681	2/911,006	-	7,748,687	3,155
1963	51	2,158	401	2,559	50.2	621,141	6,468,545	969,748	235,289	7,673,582	2,999
1964	3/50	2,140	398	2,538	50.8	-	-	-	-	-	-

1/ Prior to 1963, number of herds largely reflected membership rather than those actually serviced.

2/ Probably include some beef to beef inseminations.

3/ Not shown are inseminations to 620 hogs and 309 goats.

STATUS OF ARTIFICIAL-BREEDING PROGRAM
(January 1, 1964)

State	Studs	Cows bred in State during 1963				Milk cows in United States 2/	
		to Dairy sires		to Beef sires			
		Registered 1/	Total	Dairy cows	Beef cows	Total	Dairy cows bred
	Number	Number	Number	Number	Number	Thousands	Percent
Alabama 3/--------	0	7,955	42,832	2,817	1,198	234	19.5
Alaska------------	1	97	1,290	769	200	3	68.6
Arizona 3/--------	0	1,260	15,112	455	54	54	28.8
Arkansas 3/-------	0	3,299	22,527	5,737	1,647	200	14.1
California--------	5	29,969	356,365	17,463	2,892	867	43.1
Colorado----------	1	3,825	40,525	4,071	3,376	114	39.1
Connecticut-------	1	9,423	44,770	8,082	1,432	84	62.9
Delaware 3/-------	0	2,383	8,822	1,326	129	26	39.0
Florida 3/--------	0	8,519	94,443	10,706	1,289	184	57.1
Georgia 3/--------	0	5,538	44,538	2,706	605	212	22.3
Hawaii 3/---------	0	480	9,717	221	58	15	66.3
Idaho 3/----------	0	5,778	89,600	7,047	3,035	215	45.0
Illinois----------	3	36,701	208,213	38,389	17,812	550	44.8
Indiana-----------	1	17,803	143,845	13,381	2,601	436	36.1
Iowa--------------	1	15,805	230,729	48,468	27,950	844	33.1
Kansas------------	1	9,374	78,193	9,036	7,317	337	25.9
Kentucky----------	1	13,518	101,491	26,685	6,404	528	24.3
Louisiana---------	1	9,650	57,085	5,124	9,412	255	24.4
Maine-------------	1	10,252	51,484	5,258	1,845	101	56.2
Maryland----------	1	14,180	96,230	14,885	3,260	226	49.2
Massachusetts 3/--	0	7,869	42,999	7,895	1,399	93	54.7
Michigan----------	1	43,817	315,842	40,063	8,682	687	51.8
Minnesota---------	2	36,803	580,563	58,795	4,136	1,407	45.4
Mississippi-------	1	3,006	45,727	10,218	2,593	322	17.4
Missouri 3/-------	0	17,364	117,438	37,820	5,766	633	24.5
Montana 3/--------	0	622	11,414	8,668	4,217	74	27.1
Nebraska 3/-------	0	6,179	51,927	16,397	10,064	299	22.9
Nevada 3/---------	0	355	4,239	389	579	17	27.2
New Hampshire-----	1	6,728	28,831	3,152	755	57	56.1
New Jersey--------	1	8,787	60,860	7,774	665	125	54.9
New Mexico 3/-----	0	1,241	17,123	1,002	560	43	42.2
New York----------	1	110,036	610,432	90,558	2,222	1,338	52.4
North Carolina----	1	12,281	80,766	4,995	898	272	31.5
North Dakota 3/---	0	1,492	30,992	7,365	1,199	276	13.9
Ohio--------------	2	51,212	284,142	59,067	19,431	677	50.7
Oklahoma 3/-------	0	3,084	17,236	2,911	793	226	8.9
Oregon------------	1	5,486	61,160	14,914	6,285	156	48.8
Pennsylvania------	6	104,973	529,627	55,610	8,133	949	61.7
Puerto Rico-------	1	1,843	35,909	-	-	-	-
Rhode Island 3/---	0	785	4,250	841	134	14	36.4
South Carolina 3/-	0	4,845	26,835	3,279	621	103	29.2
South Dakota 3/---	0	2,640	27,876	14,675	2,691	251	17.0
Tennessee---------	3	7,463	82,957	18,627	10,581	505	20.1
Texas-------------	1	4,441	72,176	11,793	10,193	556	15.1
Utah--------------	1	2,548	44,680	4,815	1,383	102	48.5
Vermont 3/--------	0	18,820	113,299	14,362	2,024	276	46.3
Virginia----------	1	16,235	93,641	11,801	1,981	352	30.0
Washington--------	2	12,027	117,054	32,311	12,390	250	59.7
West Virginia 3/--	0	4,800	19,320	968	4,337	122	16.6
Wisconsin---------	6	94,902	1,195,354	199,955	15,481	2,378	58.7
Wyoming 3/--------	0	527	6,065	6,102	2,580	28	43.5
United States-----	50	799,020	6,468,545	969,748	235,289	18,073	41.2

1/ Estimates were made when reports were incomplete.
2/ Statistical Reporting Service estimate of number of cows and heifers 2 years old and over kept for milk.
3/ All semen purchased from studs in other States.

ARTIFICIAL-BREEDING ORGANIZATION BULL STUDS, JANUARY 1, 1964

State, Name, and Location of Studs	Inseminations		Number and breed of bulls used									Herds serviced number	Cows bred 1963			
	Swine	Goats	Ayr-shire	Brown Swiss	Guern-sey	Hol-stein	Jer-sey	Red Dane	Short-horn	Beef	Total		Dairy total	Dairy to beef	Beef to beef	Total
ALASKA																
Matanuska Valley Breeders Assn., Palmer----------	-	-	-	-	-	3	-	1	-	-	4	70	1/903	1/755	198	1,856
CALIFORNIA																
Adohr Farms Inseminating Service, P. O. Box 88, Camarillo---------------	-	-	-	-	10	11	-	-	-	-	21	45	8,631	-	-	8,631
Calif. Dairy Breeders, Inc., P.O.Box 188,Davis-	-	2	-	-	7	15	9	-	-	5	36	1,619	45,017	3,228	485	48,730
Excelsior Breeding Service,7401 Adams,Corona--	-	-	-	1	-	15	-	-	-	-	16	113	23,533	-	-	23,533
Jessup Breeders, 11630 East Artesia Blvd., Artesia----------------	-	69	-	4	10	29	9	-	2	-	54	1,143	1/94,723	1/2,511	661	97,895
Pacific Breeders Coop., 1464 Middle Two Rock Road, Petaluma---------	-	-	-	-	6	11	5	-	-	-	22	400	28,290	945	237	29,472
COLORADO																
Colorado State Univ. ABS, 809 City Park Ave., Ft. Collins------------	-	2	-	-	-	2	-	-	1	5	8	992	11,324	695	3,071	15,090
CONNECTICUT																
New England Selective Breeding Assn., Newton Road, Woodbridge--------	-	26	2	4	7	19	10	-	-	-	42	8,803	96,001	15,819	3,266	115,086
ILLINOIS																
Curtiss Breeding Service, Inc., Cary--------------	-	-	4	3	18	67	13	-	2	50	157	31,100	782,965	178,913	21,000	982,878
Northern Ill. Breeding Coop., Rt. 1, Hampshire-	18	5	-	11	13	37	-	-	1	-	62	8,008	81,559	14,185	6,277	102,021
Southern Ill. Breeding Assn., Breese----------	-	21	-	-	6	18	3	-	3	-	30	10,524	46,203	14,593	10,396	71,192
INDIANA																
John A. Newman & Sons, Rt.2, Box 21,Culver 2/ --	-	-	-	-	-	6	-	-	-	-	1/6	57	687	-	-	687
IOWA																
Eastern Iowa Breeders, Hiawatha---------------	-	-	2	9	8	26	2	-	3	-	50	30,378	105,301	21,400	15,922	142,623
KANSAS																
Kansas Artificial Breeding Service Unit, Kansas State Univ., Manhattan--	-	5	4	5	4	24	4	-	4	19	64	7,250	36,512	4,253	6,460	47,225
KENTUCKY																
Ky. Artificial Breeding Assn., 1930 Herr Lane, Louisville-------------	-	2	7	5	8	16	10	-	-	12	51	13,450	1/71,552	1/21,961	5,768	99,281
LOUISIANA																
La. Artificial Breeding Coop., Inc., Box B. D., LSU, Baton Rouge--------	-	1	-	-	6	9	6	-	-	12	33	5,390	52,016	4,550	9,277	65,843

1/ Data may be all or partially estimated when incomplete report was given.
2/ Based on last report available, (1-1-63).

State, Name, and Location of Studs	Inseminations		Number and breed of bulls used									Herds serviced	Cows bred 1963			
	Swine	Goats	Ayrshire	Brown Swiss	Guernsey	Holstein	Jersey	Red Dane	Shorthorn	Beef	Total	number	Dairy total	Dairy to beef	Beef to beef	Total
MAINE																
Maine Breeding Coop., Inc., RFD 1, Augusta----	-	-	1	-	11	15	12	-	5	4	48	4,500	45,566	3,942	1,689	51,197
MARYLAND																
Maryland-West Virginia Bull Stud, Inc., P. O. Box 555, Frederick------	-	30	5	5	8	19	6	-	-	7	50	13,400	94,727	12,025	7,166	113,918
MICHIGAN																
Mich. ABC, Inc., P. O. Box 511, East Lansing---	-	19	3	5	12	37	9	3	4	15	88	19,959	[1]228,814	[1]28,670	7,530	265,014
MINNESOTA																
Midwest Genes, Inc., Box 111, Anoka----------	-	-	-	8	19	90	6	-	9	-	132	63,668	[1]376,449	[1]56,962	20,979	454,390
Minn. Valley Breeders Assn., New Prague-------	-	-	3	3	15	70	3	-	4	26	124	32,961	253,455	52,985	2,789	309,229
MISSISSIPPI																
Mississippi ABC, State College-----------------	-	4	-	-	4	5	9	-	-	2	[1]20	2,572	[1]22,499	[1]6,613	1,753	30,865
NEW HAMPSHIRE																
New Hampshire-Vermont Breeding Assn., Box 350, Concord----------------	-	-	2	-	8	14	10	-	-	4	38	5,156	[1]53,095	[1]5,488	1,441	60,024
NEW JERSEY																
New Jersey Coop. Breeders Assn., Annandale 08801--	-	16	-	2	9	17	3	-	-	2	33	2,125	41,530	6,336	500	48,366
NEW YORK																
New York ABC, Inc., Judd Falls Rd., Ithaca--	-	-	13	15	23	94	29	-	-	15	189	28,947	477,759	74,100	-	551,859
NORTH CAROLINA																
N. C. Institutional Breeding Assn., Dept. Animal Science, N. C. State College,Raleigh [2]	-	-	-	-	-	13	-	-	-	-	13	10	[1]1,132	[1]182	48	1,362
OHIO																
Central Ohio Breeding Assn., 1224 Alton-Darby Rd., Columbus 43204-----	-	39	7	4	17	35	10	-	-	-	73	36,802	[1]193,241	[1]40,102	24,703	258,046
NOBA, Inc., Box 1015, Tiffin------------------	-	16	-	3	11	30	16	-	1	19	80	20,490	178,832	34,858	8,237	221,927
OREGON																
Oregon Breeders Assn., P.O. Box 48, Corvallis--	-	9	-	-	12	11	11	-	-	5	39	7,700	27,291	12,182	5,653	45,126
PENNSYLVANIA																
First Pa. ABC, Lewisburg-	-	-	-	-	7	19	-	-	-	10	36	5,900	55,540	2,908	15	58,463
Lehigh Valley Coop. Farmers, Rt.1,Allentown-	-	-	4	1	6	19	2	-	-	2	34	1,975	[1]26,485	[1]3,818	1,003	31,306

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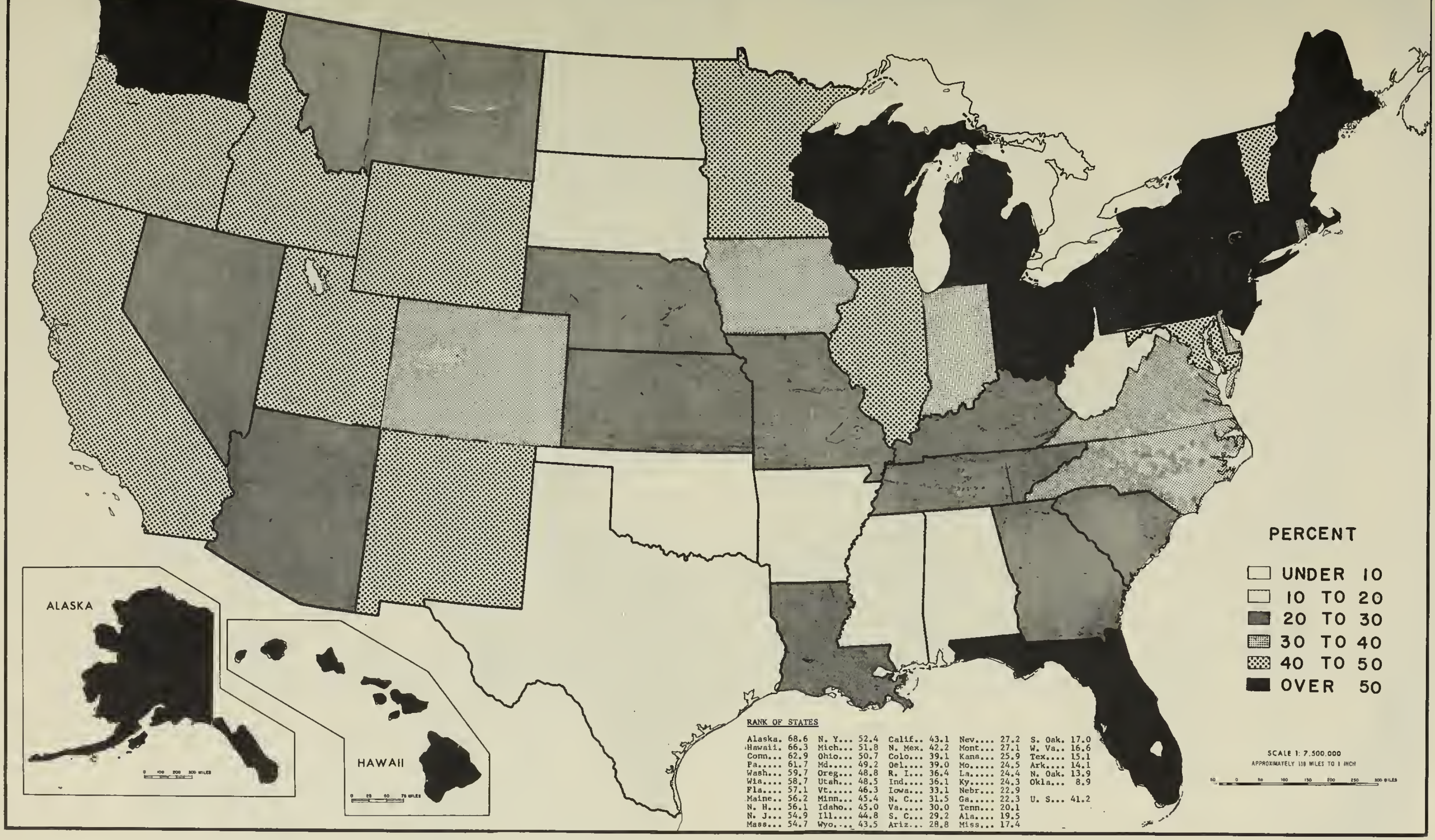
[2] Based on last report available, (1-1-63).

State, Name, and Location of Studs	Inseminations		Number and breed of bulls used									Herds serviced	Cows bred 1963			
	Swine	Goats	Ayrshire	Brown Swiss	Guernsey	Holstein	Jersey	Red Dane	Shorthorn	Beef	Total	number	Dairy total	Dairy to beef	Beef to beef	Total
PENNSYLVANIA (Con't.)																
NEPA ABC, P. O. Box 26, Tunkhannock-------------	-	-	5	-	7	22	8	-	-	6	48	7,000	92,254	15,563	-	107,817
Southeastern Pa. ABC, Box 254, Lancaster------	-	33	4	-	9	21	4	-	-	12	50	9,016	124,236	15,852	1,404	141,492
Western Pa. ABC, Box 550, Clarion-----------------	-	-	4	7	18	28	10	-	-	6	73	14,262	128,250	2,100	3,931	134,281
Zimmerman Dairy Farm, Lehighton---------------	-	-	-	-	-	6	-	-	-	-	[1]6	167	2,000	-	-	2,000
PUERTO RICO																
Puerto Rico Artificial Breeding Assn., P. O. Box 958, Dorado [2]------	-	-	-	4	-	11	-	-	-	2	17	931	17,776	-	-	17,776
TENNESSEE																
East Tennessee ABA, Rt. 10., Knoxville------	-	-	3	2	9	12	9	-	1	8	44	4,170	26,939	7,029	3,423	37,391
Tennessee Artificial Breeding Association, Brentwood---------------	-	-	-	2	7	6	9	-	-	5	[1]29	2,919	24,880	6,832	3,319	35,031
West Tennessee Artificial Breeding Assn.,Yorkville	-	-	-	-	-	7	5	-	-	6	18	2,019	7,078	665	3,420	11,163
TEXAS																
Texas A & M Dairy Breeding Center, College Station-----------------	-	-	-	-	-	1	-	-	-	10	11	2	777	-	-	777
UTAH																
Cache Valley Breeding Assn., 1950 N. Main, Logan 84321-------------	-	-	3	3	3	20	3	-	4	19	55	8,125	61,674	8,973	7,312	77,959
VIRGINIA																
Va. ABA, Inc., P. O. Box 391, Rocky Mount--------	-	10	4	-	7	15	5	-	-	7	38	6,205	55,601	8,063	1,451	65,115
WASHINGTON																
W. De Jong's Supreme Bull Service, Rt. 1.,Monroe [2]	-	-	-	-	-	3	-	-	-	1	4	60	[1]1,455	[1]436	114	2,005
Evergreen Northwest Breeders, Inc., P. O.Box 197, Burlington---------	-	-	1	2	12	20	12	-	3	15	65	17,096	73,421	25,892	11,072	110,385
WISCONSIN																
American Breeders Service, Madison-----------------	-	-	3	4	12	54	13	-	4	54	[1]144	125,056	1,398,853	[1]80,640	21,180	1,500,673
Associated Breeding Service, Lena-----------	-	-	4	-	4	9	-	-	-	-	17	2,000	18,387	3,480	243	22,110
Badger Breeders Coop., Shawano-----------------	-	-	-	6	17	31	6	-	-	8	68	22,265	343,465	60,817	3,994	408,276
E. Central Breeders Assn. Coop., Waupun-----------	-	-	-	5	5	23	-	-	-	6	39	6,000	72,009	17,230	100	89,339
Piper Bros. Farms, Inc., Watertown---------------	-	-	-	1	4	26	-	-	-	-	31	4,127	91,672	19,618	2,300	113,590
Tri-State Breeders Coop., Westby------------------	602	-	-	10	20	65	9	-	5	19	128	24,214	366,186	71,579	5,502	443,267
UNITED STATES-------------	620	309	81	134	399	1,176	290	4	56	398	2,538	621,141	6,468,545	969,748	235,289	7,673,582

[1] Data may be all or partially estimated when incomplete report was given.
[2] Based on last report available, (1-1-63).

DAIRY COWS BRED ARTIFICIALLY, 1963



RANK OF STATES

Alaska.	68.6	N. Y...	52.4	Calif..	43.1	Nev....	27.2	S. Dak.	17.0
Hawaii.	66.3	Mich...	51.8	N. Mex.	42.2	Mont...	27.1	W. Va..	16.6
Conn...	62.9	Ohio...	50.7	Colo...	39.1	Kans...	25.9	Tex....	15.1
Pa.....	61.7	Md.....	49.2	Del....	39.0	Mo.....	24.5	Ark....	14.1
Wash...	59.7	Oreg...	48.8	R. I...	36.4	La.....	24.4	N. Dak.	13.9
Wis....	58.7	Utah...	48.5	Ind....	36.1	Ky.....	24.3	Okla...	8.9
Fla....	57.1	Vt.....	46.3	Iowa...	33.1	Nebr...	22.9		
Maine..	56.2	Minn...	45.4	N. C...	31.5	Ga.....	22.3	U. S...	41.2
N. H...	56.1	Idaho..	45.0	Va.....	30.0	Tenn...	20.1		
N. J...	54.9	Ill....	44.8	S. C...	29.2	Ala....	19.5		
Mass...	54.7	Wyo....	43.5	Ariz...	28.8	Miss...	17.4		

EXTENSION SERVICE OFFICIALS WORKING WITH DAIRY BREEDING ORGANIZATIONS IN THE STATES

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Alaska---W. J. Sweetman, Dairy Husbandman, University of Alaska, Palmer.
Ariz-----W. R. Van Sant, Extension Service, University of Arizona, Tucson.
Ark------James B. Ragland, Extension Service, University of Arkansas, Little Rock.
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Ohio-----C. D. McGrew, Extension Service, Ohio State University, Columbus 10.
Okla-----C. H. Burton, Extension Division, Oklahoma State University, Stillwater.
Oreg-----H. P. Ewalt, Extension Service, Oregon State University, Corvallis.
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Wis------G. M. Werner, Extension Service, University of Wisconsin, Madison 6.
Wyo------I. W. Slater, Extension Division, University of Wyoming, Laramie.

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National Cooperative Dairy Herd Improvement Program
RECORD BOOK
A plan for every size herd
STANDARD DHIA OWNER SAMPLER WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter
ARS-44-147
(Vol. 40, No. 5)

June 1964

RÉSUMÉ OF 1963-64

Genetic Appraisal of Sires

As planned (ARS-44-131), quarterly sire evaluations were made during fiscal year 1964. These genetic appraisals were based on 16,959 non-AI and 5,454 AI sire evaluations. Collectively, they resulted in 66,383 individual sire records (DHIA-1202's) for the cooperating States and were based on 1,911,102 lactation records reported since the last evaluation in 1962-63. A further summary of the quarterly sire evaluation is shown in table 1.

Genetic Appraisal of Cows

The initial DHIA Cow Index List (ARS-44-139) was produced in April 1964 and the second (ARS-44-146) in June. These indexing procedures are used to evaluate and recognize genetically superior cows. The cows and levels represented in the two lists which represent 10,147 evaluations after screening approximately 500,000 potential qualifiers are as follows:

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JUL 23 1964
UNIVERSITY OF ILLINOIS

Breed	Minimum Level 1/ Milk Lbs.	Cow Indexes ARS-44-139 No.	ARS-44-146 No.
Ayrshire	1,995	72	97
Guernsey	1,312	408	586
Holstein	1,711	2,392	5,409
Jersey	1,189	386	512
Brown Swiss	1,586	127	151
Milking Shorthorn	1,350	2	5
Total		3,387	6,760

1/ Index equated to genetic superiority over herdmates. The average index value of all cows was in excess of 2,000 pounds of milk.

Issued July 1964

Great potential can be realized in selectively mating genetically superior cows and sires. For example, a thoroughly tested and AI-evaluated sire with a predicted average in excess of the breed average by 1,000 pounds of milk has an estimated breeding value of +2,000 since he is presumed to have been mated to average cows. The mating of this bull to a cow indexed at +2,000 should yield offspring of similar levels of breeding values.

Robertson and Rendel of 1950* estimated that under strictly AI conditions, genetic improvement in the amount of 1.69 percent per year is possible. The values assigned to each grandparent and expressed as a sum of 100 percent are as follows:

Paternal grandsire = 43 percent
Sire
Paternal granddam = 18 percent
Calf
Maternal grandsire = 33 percent
Dam
Maternal granddam = 6 percent

Thus, in terms of potential under AI-tested conditions, the parents of the dam of a calf are valued at 39 percent (33 + 6). These estimates, along with rates of genetic progress, will vary according to the amount of production testing involved and with the intensity of selection in the choice of sires and dams.

The DHIA Cow Index can and should be a very useful tool in assisting the industry to further advance genetic progress in the Nation's dairy herds. The indexing method, which considers both the cow (her performance vs. herdmates) and her AI sire (her paternal half-sisters vs. their herdmates), complements the DHIA sire summary evaluations.

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*Robertson, A., and Rendel, J. M. 1950. The use of progeny testing with artificial insemination in dairy cattle. J. Genetics, 50:21-31.

Herd and Cow Production Levels

The 2,006,534 Standard DHIA cows in 1962-63 averaged 11,286 pounds of milk and 434 pounds of fat. This represented an increase of 254 pounds of milk per cow per year over the previous year's average, and a superiority of more than 2 tons of milk per cow over that of non-tested cows. The production of Owner-Sampler cows was initially reported (ARS-44-141) and averaged 10,606 pounds of milk and 396 pounds of fat. These production values are on a cow-year average basis.

Participation in DHIA Recordkeeping Plans

On January 1, 1964, the combined DHIA recordkeeping program totaled 2,822,522 cows and 67,664 herds. This represents 17.1 percent of the Nation's dairy cow population (as opposed to 16.3 percent in 1963) and represents an increase of 39,018 cows over the previous year.

2,554 SIRES SUMMARIZED IN MAY 1964

A total of 1,508 non-AI and 1,046 AI sires were evaluated in May 1964. Included in the evaluation were 286,235 lactation records received and processed since the previous summary. Tables 2, 3, and 4 further summarize the results of the evaluation.

SEASONAL VARIATIONS IN U.S. DHIA AVERAGES

Breed-season lactation averages for cows that calved in 1962 are shown in table 5. The average of all available 1,095,604 lactation records, 54 percent of which represent grade cows, was 11,953 pounds of milk and 459 pounds of fat. Within the calendar year, calvings in October through March resulted in superiority of lactation milk yield in the amount of 573, 521, 557, 430, 619, and 385 pounds for Ayrshire, Guernsey, Holstein, Jersey, Brown Swiss, and Milking Shorthorn cows, respectively. The highest lactation average for percent of butterfat test was noted among cows calving from January through June. The lowest three months in lactation average milk yield were for calvings in June, July, and August. These seasons of calving relationships with production performance are generally consistent with previously reported research results.

Table 1.--Sire summaries in 1963-64

Evaluation	AI		Non-AI		Summaries to States	Additional records added since last run
	Sires	Progeny	Sires	Progeny		
	No.	No.	No.	No.	No.	No.
July 1963	1,284	183,986	5,227	61,364	16,718	597,597
November 1963	913	155,278	3,076	25,759	10,169	542,889
March 1964	2,211	591,577	7,148	110,610	30,312	484,381
May 1964	1,046	195,591	1,508	13,965	9,184	286,235
Overall	5,454	1,126,432	16,959	211,698	66,383	1,911,102

Table 2.--Performance of AI sires summarized in May 1964, as measured by the production of progeny and their herdmates

Breed	Sires				Daughters Average Production			Herdmates Average Production		
	Total	Milk Yield Maintained or increased	Fat Yield Maintained or increased	Daughters with Herdmates	Milk	Test	Fat	Milk	Test	Fat
	No.	Pct.	Pct.	No.	Lbs.	Pct.	Lbs.	Lbs.	Pct.	Lbs.
Ayrshire	34	74	68	3,029	10,560	4.1	428	10,449	4.1	427
Guernsey	199	43	54	19,491	8,947	4.8	431	8,991	4.8	431
Holstein	579	45	52	156,887	13,033	3.7	480	13,213	3.7	483
Jersey	156	46	47	11,616	8,307	5.2	433	8,408	5.2	437
Brown Swiss	59	49	56	4,437	11,327	4.1	464	11,218	4.1	459
Milking Shorthorn	16	50	50	121	9,004	3.8	344	8,852	3.8	334
Red Dane	3	33	33	10	10,380	3.7	384	10,870	3.7	407
Overall	1,046	46	52	195,591	11,305	4.1	459	11,417	4.0	461

Table 3.--Performance of non-AI sires summarized in May 1964, as measured by the production of progeny and their herdmates

Breed	Sires				Daughters Average Production			Herdmates Average Production		
	Total	Milk Yield Maintained or increased	Fat Yield Maintained or increased	Daughters with Herdmates	Milk	Test	Fat	Milk	Test	Fat
	No.	Pct.	Pct.	No.	Lbs.	Pct.	Lbs.	Lbs.	Pct.	Lbs.
Ayrshire	41	63	63	358	10,580	4.1	434	10,329	4.1	421
Guernsey	271	52	55	2,655	9,221	4.9	451	9,225	4.8	445
Holstein	873	49	50	7,746	13,418	3.7	491	13,425	3.7	491
Jersey	219	51	52	2,119	8,376	5.2	438	8,404	5.2	438
Brown Swiss	81	51	57	863	11,156	4.1	460	11,077	4.1	450
Milking Shorthorn	23	61	52	224	9,189	3.7	342	8,843	3.8	334
Red Dane	-	-	-	-	-	-	-	-	-	-
Overall	1,508	51	52	13,965	11,668	4.0	471	11,661	4.0	469

Table 4.--Number of sire records summarized 05-64, by State, by breed

State	Ayrshire	Guernsey	Holstein	Jersey	Brown Swiss	Shorthorn	Red Dane	Total
	Number	Number	Number	Number	Number	Number	Number	Number
Maine----------------	11	20	72	21	7	2		133
New Hampshire--------	19	23	83	22	8	1		156
Vermont--------------	17	43	168	68	19			315
Massachusetts--------	22	48	129	34	17			250
Rhode Island---------	5	9	49	10				73
Connecticut----------	16	63	123	29	17			248
New York-------------	29	75	426	69	25	3	1	628
New Jersey-----------	2	47	124	23	14			210
Pennsylvania---------	21	108	252	49	24	3		457
Ohio-----------------	12	53	160	66	27	2		320
Indiana--------------	5	56	122	33	22	2		240
Illinois-------------	16	79	247	37	45	7		431
Michigan-------------	5	52	261	44	24	3	3	392
Wisconsin------------	9	95	359	38	46	11		558
Minnesota------------	19	57	239	25	32	10		382
Iowa-----------------	16	48	213	42	41	12		372
Missouri-------------		32	93	27	7	6		165
North Dakota---------	1	10	43	3	9	1		67
South Dakota---------	5	7	68	6	12			98
Nebraska-------------	4	21	95	7	14	4		145
Kansas---------------	13	32	120	19	16	5		205
Delaware-------------	4	15	63	6	6			94
Maryland-------------	11	56	173	21	24	1		286
Virginia-------------	11	53	161	22	11	1		259
West Virginia--------	8	17	79	18	1			123
North Carolina-------	6	38	125	37	13			219
South Carolina-------	1	33	86	23	11			154
Georgia--------------	4	17	86	19	15			141
Florida--------------	1	41	36	25	9			112
Kentucky-------------		17	94	29	7			147
Tennessee------------	2	45	65	44	14	3		173
Alabama--------------	2	26	51	27	6	1		113
Mississippi----------	8	26	23	35	8			100
Arkansas-------------	1	16	32	8		3		60
Louisiana------------		26	29	15	4			74
Oklahoma-------------	5	12	54	16	8	7		102
Texas----------------	6	21	105	33	20			185
Montana--------------		7	21	4	5			37
Idaho----------------	1	30	71	19	9	3		133
Wyoming--------------		1	17					18
Colorado-------------	2	19	81	15	13			130
New Mexico-----------		9	29	8				46
Arizona--------------		21	39	8	3			71
Utah-----------------	2	18	90	10	2			122
Nevada---------------		1	4	6				11
Washington-----------	7	34	85	24	3	2		155
Oregon---------------	4	42	62	47	7	4		166
California-----------	1	27	54	14				96
Puerto Rico----------			6					6
Hawaii---------------			1					1
Alaska---------------			1		4			5
Total----------------	75	472	1,459	377	141	39	3	1/9,184 2/2,566

1/ Represents the number of individual sire records sent to States.

2/ Represents the number of sires summarized.

Table 5.--Breed-season DHIA lactation averages for calvings in 1962

AYRSHIRE

Calving Month	Records		Average Production		
	Registered	Total	Milk	Fat	
	Pct.	No.	Lbs.	Pct.	Lbs.
January--------	81	1,823	10,293	4.01	413
February-------	79	1,701	10,401	3.99	415
March----------	79	1,944	10,440	3.98	415
April----------	77	1,333	10,133	3.97	402
May------------	79	1,169	9,967	3.95	394
June-----------	78	1,080	9,812	3.97	390
July-----------	78	1,883	9,629	4.03	388
August---------	78	2,860	9,809	4.07	399
September------	78	2,944	9,959	4.09	407
October--------	79	2,619	10,451	4.10	428
November-------	80	2,249	10,550	4.07	429
December-------	78	1,876	10,613	4.05	430
Overall--------	79	23,481	10,179	4.04	411

GUERNSEY

Calving Month	Records		Average Production		
	Registered	Total	Milk	Fat	
	Pct.	No.	Lbs.	Pct.	Lbs.
January--------	67	10,999	9,205	4.71	434
February-------	67	9,477	9,227	4.69	433
March----------	67	10,033	9,218	4.69	432
April----------	66	8,053	9,093	4.70	427
May------------	68	7,118	8,813	4.70	414
June-----------	66	7,190	8,589	4.72	405
July-----------	68	10,227	8,440	4.76	402
August---------	66	13,215	8,424	4.81	405
September------	64	13,995	8,614	4.83	416
October--------	65	12,874	8,961	4.83	433
November-------	66	12,245	9,209	4.80	442
December-------	66	10,901	9,277	4.74	440
Overall--------	66	126,327	8,916	4.76	424

HOLSTEIN

Calving Month	Records		Average Production		
	Registered	Total	Milk	Fat	
	Pct.	No.	Lbs.	Pct.	Lbs.
January--------	41	65,245	13,070	3.63	474
February-------	40	53,501	13,053	3.62	473
March----------	40	56,424	12,986	3.62	470
April----------	38	43,645	12,899	3.61	466
May------------	38	37,798	12,653	3.61	457
June-----------	37	40,714	12,429	3.63	451
July-----------	38	66,571	12,290	3.65	448
August---------	39	98,681	12,454	3.66	456
September------	39	107,153	12,770	3.68	470
October--------	39	96,939	13,157	3.69	485
November-------	40	87,621	13,281	3.67	487
December-------	40	77,778	13,288	3.64	484
Overall--------	39	832,070	12,882	3.65	470

JERSEY

Calving Month	Records		Average Production		
	Registered	Total	Milk	Fat	
	Pct.	No.	Lbs.	Pct.	Lbs.
January--------	66	7,806	8,636	5.09	440
February-------	64	6,541	8,646	5.08	439
March----------	64	6,533	8,741	5.08	444
April----------	64	5,137	8,592	5.06	435
May------------	62	4,316	8,355	5.04	421
June-----------	60	4,185	8,134	5.05	411
July-----------	62	6,882	7,913	5.09	403
August---------	61	9,712	7,757	5.14	399
September------	61	10,299	7,903	5.20	411
October--------	60	9,359	8,203	5.18	425
November-------	61	8,409	8,451	5.16	436
December-------	62	7,838	8,558	5.12	438
Overall--------	62	87,017	8,290	5.13	425

Table 5.--Breed-season DHIA lactation averages for calvings in 1962 (Con't.)

BROWN SWISS

Calving Month	Records		Average Production		
	Registered	Total	Milk	Fat	
	Pct.	No.	Lbs.	Pct.	Lbs.
January--------	72	1,949	11,552	4.05	468
February-------	71	1,735	11,477	4.04	464
March----------	73	1,953	11,494	4.04	464
April----------	73	1,647	11,352	4.03	458
May------------	72	1,381	11,055	4.03	445
June-----------	70	1,388	10,818	4.04	437
July-----------	74	1,923	10,677	4.10	438
August---------	69	2,344	10,636	4.13	439
September------	68	2,299	10,830	4.14	448
October--------	67	2,168	11,245	4.14	465
November-------	71	2,145	11,530	4.11	474
December-------	71	1,913	11,788	4.08	481
Overall--------	71	22,845	11,201	4.08	457

MILKING SHORTHORN

Calving Month	Records		Average Production		
	Registered	Total	Milk	Fat	
	Pct.	No.	Lbs.	Pct.	Lbs.
January--------	84	300	9,094	3.82	347
February-------	80	251	9,069	3.80	345
March----------	84	308	9,303	3.79	353
April----------	82	227	9,186	3.71	341
May------------	81	188	8,930	3.72	332
June-----------	79	168	8,792	3.75	330
July-----------	88	307	8,537	3.80	324
August---------	86	384	8,133	3.75	305
September------	83	403	8,583	3.82	328
October--------	82	383	8,922	3.84	343
November-------	85	324	9,030	3.82	345
December-------	81	303	9,051	3.83	347
Overall--------	83	3,546	8,855	3.79	336

RED DANE

Calving Month	Records		Average Production		
	Registered	Total	Milk	Fat	
	Pct.	No.	Lbs.	Pct.	Lbs.
January--------	0	15	11,734	3.84	450
February-------	0	12	12,613	3.97	501
March----------	0	21	10,757	4.07	438
April----------	0	12	10,696	3.92	419
May------------	0	14	9,681	4.17	404
June-----------	0	8	10,435	3.97	414
July-----------	0	14	9,954	3.83	381
August---------	0	31	10,703	4.06	435
September------	0	30	10,242	4.07	417
October--------	0	13	10,884	3.94	429
November-------	0	20	11,457	3.82	438
December-------	0	9	11,622	3.91	454
Overall--------	0	199	10,825	3.98	431

RED POLL

Calving Month	Records		Average Production		
	Registered	Total	Milk	Fat	
	Pct.	No.	Lbs.	Pct.	Lbs.
January--------		17	8,183	3.91	320
February-------	91	11	6,499	4.05	263
March----------	73	11	8,233	4.12	339
April----------	60	10	7,826	4.00	313
May------------	67	3	7,080	4.28	303
June-----------	78	9	6,332	3.90	247
July-----------	43	7	6,273	4.16	261
August---------	100	5	9,128	4.17	381
September------	56	9	9,000	4.10	369
October--------	85	13	6,437	4.05	261
November-------	93	14	7,541	4.03	304
December-------	90	10	7,535	4.13	311
Overall--------	81	119	7,503	4.05	304
United States--	46	1,095,604	11,953	3.84	459

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ARS-44-148
Dairy-Herd-Improvement Letter (Vol. 40, No. 6)

July-August 1964

GENETIC EVALUATION PLANS FOR 1964-1965

Sire Summaries

As in 1963-64, sire summaries will be provided quarterly and will include all sires initially qualifying, sires active in AI, and special requests. Previous evaluations of all other sires will be updated on a semiannual basis when the records available include a 50 percent or greater increase in number of progeny. Each of the four production runs will require approximately 1 month and is scheduled as follows:

A. August

1. Sires initially qualifying with five or more progeny.
2. Sires active in AI.
3. Special requests.
4. Sires having a 50 percent or more increase in number of progeny since the previous summary.

B. November

1. Sires initially qualifying with five or more progeny.
2. Sires active in AI.
3. Special requests.

C. February

(Same as August)

D. May

(Same as November)

Issued September 1964

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One minor change will be made in the formats of the Individual Sire Record (USDA 1202) and the Sire Summary List. A count of the number of herds (up to and including 25) represented in each AI sire summary will be made and printed on the appropriate form. This count will not exceed 25 herds because of mechanical limitations in current data processing procedures. Since sire summaries containing few herds are less reliable than those representing many herds, this count will provide a degree of visual assurance (or caution) as to the accuracy of the genetic evaluation in early summaries of bulls in AI.

The distribution of Individual Sire Records and the Sire Summary Lists will be as that of last year and as previously described in ARS-44-131.

Cow Performance Index List

As in 1963-64, the Cow Performance Index List will be provided semiannually. The publication will represent approximately the top 2 percent of the registered progeny of bulls currently being summarized, and will include the names and addresses of the herds represented. Plans are also being made to expand the cow index procedure to include not only the registered progeny of AI sires but other registered cows as well.

There will be no change in the distribution of the Cow Index publication that will result from production runs in November and May.

OPPORTUNITY FOR INCREASING PROFITS THROUGH USE OF SUPERIOR AI SIRES

Sire selection provides the dairyman with the most important single tool for genetic improvement. Bulls which are genetically superior in transmitting ability for production exist both in AI and in privately owned herds. While within herd summaries of bulls can be effectively used in predicting future performance in the same herd, they do not predict with accuracy future performance in other herds. Consequently, and with presently employed techniques, it is rarely possible to sample a bull in a single herd with sufficient reliability to recognize and exploit fully those having real potential. On the other hand, AI provides the operational structure whereby bulls can be and are extensively sampled and tested and the good as well as poor ones identified with considerable accuracy. Outstanding bulls, which have been throughly tested in AI, provide dairymen at large with what is probably the best single opportunity for genetic improvement.

Considerable variation in breeding value exists among bulls in AI. The information in table 1, which reflects the production gain or loss to be expected from the use of AI sires, emphasizes the economic importance and consequence of these genetic differences. Dairymen using sires that have been thoroughly tested in AI and that have predicted averages exceeding the breed average by 800 pounds of milk should realize gross income gain of $30 per daughter over progeny of breed average sires. This difference becomes $60 per cow and $3,000 per 50-cow herd when the performance of bulls at +800 and -800 pounds of milk are compared. Bulls at these levels of breeding value do exist and are currently being used in AI. In the May 1964 DHIA Sire Summary List (ARS-44-145), 68 bulls were listed with breeding values of +800 or greater and 36 bulls with breeding values of -800 or less.

Although production increases realized through genetic gain will not be entirely free from such additional cost as involving feed and labor, these increased returns will enable the dairyman to improve his margin of profit. To accomplish this most effectively, breeders of grade and registered cattle alike must realize that AI provides (1) the operational structure whereby the breeding value of bulls is far more accurately determined than previously or otherwise possible, (2) the source of bulls having the best known breeding value, and (3) a wide variation in breeding value among bulls. It then follows that dairymen should maximize genetic gain in production, not just by breeding AI but by using bulls whose breeding value is known to be superior rather than inferior. The information needed to recognize the merit of such bulls is now current and readily available in educational or sire summary materials.

The practical impossibility for dairymen at large to breed strictly to thoroughly tested bulls that are known to be genetically superior in AI must be recognized. It is well known that maximum genetic gain in a population of dairy cows requires that a number of bulls be continually sampled in many herds. The potential to be realized from such a young sire sampling program and the fact that it does not necessarily involve risk to dairymen will be discussed in a future issue of this publication.

The genetic potential that AI provides is applicable to either grade or registered cattle, at any level of production, and especially to the millions of cows now being bred by nondescript bulls.

INTERPRETATION AND USE OF INITIAL SUMMARIES OF AI BULLS

The transmitting ability of a bull for production is determined by comparing the performance of each of his daughters with herdmates in production tested herds. Each daughter represents a sample-half of the breeding value of her sire. Since the genetic composition of a bull is extremely complex, and since the performance of a single cow is considerably influenced by feeding and management, reliability of the progeny test depends heavily upon the number of daughters sampled. Also, the number of herds represented in the evaluation of AI sires is an important consideration. It is because of these things that page 1 of each Sire Summary List publication includes the following statement:

> "When a non-AI sire evaluation is based on 5 to 9 daughter-herdmate comparisons and an AI evaluation is based on 5 to 24 comparisons, these should be considered 'preliminary'."

There are indications that the first summaries of AI bulls tend to be biased downward as is evident from the following tabulation of 64 Holstein sires that were evaluated initially in July 1963:

Date of summary	Av. number of daughters	Av. difference from herdmates	
		Milk Lbs.	Fat Lbs.
July 1963	16.7	-514	-13
Nov. 1963	45.6	-177	- 3
Feb. 1964	76.9	-133	- 1
May 1964	96.6	-123	0

Among all 64 bulls, the average change in the daughter-herdmate difference from the initial to the second summary was 337 pounds of milk and 11 pounds of fat. Changes from the first to second summary often exceeded this amount considerably in individual bulls. After the initial summary, however, successive evaluations based on 40 or more daughters were reasonably consistent and in most instances should provide a satisfactory prediction of the bull's breeding value.

Research efforts designed to determine the specific source(s) of this apparent negative bias in initial AI sire summaries are in progress. On the basis of these findings, which should be available soon, appropriate steps will be taken in order to increase the reliability of initial and early summaries of AI bulls.

Users of USDA sire summaries are reminded to interpret "preliminary" evaluations as such and to exercise caution when the information involving AI bulls represents less than 40 production tested daughters having herdmates in fewer than 25 herds.

NOTES [1]

U. S. Farmers received an average of $3.94 per cwt. for milk sold wholesale to plants and dealers in July, up 16 cents from June. Fluid market milk, at $4.37 per cwt., was 22 cents higher while manufacturing grade milk, at $3.15 per cwt., was up 3 cents. (Pr 1, 7-64)

The average single quart price for the most common grade of whole milk delivered to homes in 25 major cities was 27.3 cents in early May. Out-of-store half-gallon prices averaged 45.9 cents. (Da 1-3, 5-64)

July milk production in the United States is estimated at 10,824 million pounds, slightly below July 1963 and 1 percent below the 1958-62 average for the month. July milk production averaged 675 pounds per cow and amounted to 1.82 pounds per person daily, compared with 1.85 pounds a year earlier. (Da 1-1, 8-64)

1/ From USDA Statistical Reporting Service publications: Agricultural Prices (Pr) and Milk Production (Da).

The number of milk cows in the United States in June is estimated at 16,072,000, about 3 percent below a year earlier. Milk cow numbers have declined each year since 1953, with an average decline of 2.7 percent. These decreases since last year ranged from 1.8 percent in the East North Central to 5.6 percent in the South Central regions. (Da 1-1, 8-64)

Reported conditions of dairy pastures for the United States averaged 69 percent of normal on August 1. This is 2 points lower than the relatively poor condition of a year ago and the lowest United States average for August 1 since 1954. (Da 1-1, 8-64)

Table 1.--Yearly gross income (gain or loss) to be expected from using AI bulls of different levels of breeding value

ABOVE AVERAGE SIRES

Level of superiority or inferiority of AI bulls from breed average for milk yield		Gross income gain or loss as compared to AI sires of average breeding value[1]	
PA-BA[2] Lb. Milk	Cow-year basis[3] Lb. Milk	Per Cow (daughter) Dollars	Per 50-cow herd Dollars
+1,400	+1,281	+53	+2,650
+1,200	+1,098	+45	+2,250
+1,000	+ 915	+38	+1,900
+ 800	+ 732	+30	+1,500
+ 600	+ 549	+23	+1,150
+ 400	+ 366	+15	+ 750
+ 200	+ 183	+ 8	+ 400

BELOW AVERAGE SIRES

- 200	- 183	- 8	- 400
- 400	- 366	-15	- 750
- 600	- 549	-23	-1,150
- 800	- 732	-30	-1,500

[1] Gross income gain or loss is expressed as deviations from that expected of breed average sires and is based on the cow-year expression for milk valued at $4.11 cwt. (1962 average price for all milk in DHIA).

[2] USDA Predicted Average minus Breed Average.

[3] Cow-year values are expressed as (PA-BA) x .915 in order to convert 305-day M.E. production averages to a non-M.E. cow-year basis.

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ARS-44-151
(Vol. 40, No. 7)

Dairy-Herd-Improvement Letter

September-October 1964

5,612 SIRES SUMMARIZED IN AUGUST 1964

A total of 1,192 AI and 4,420 non-AI sires were evaluated in August 1964. The evaluations included 264,342 daughters with herdmates, resulted in 14,727 individual sire records, which were provided to the cooperating States, and represented 352,777 records reported since the previous summary. A summary of the number of sire records (DHIA 1202 forms) provided to the States in August 1964 is shown in table 1.

USE OF YOUNG AI BULLS

The genetic potential that can be realized by use of reliably proved AI bulls whose progeny are substantially superior to their herdmates for milk and fat yield was previously discussed in ARS-44-148. Proved AI bulls are not easily obtained. Their development generally takes 5 years or longer. In addition, the cooperation of the artificial breeding organizations and of dairymen who breed a portion of their cows to young unproved bulls is needed to maintain the supply of such herd improvers. To obtain maximum genetic progress, many research studies have shown that young sires should be sampled in many herds and that only the best sires should be used as parents of future generations.

The most effective sampling technique consists of breeding each young untested bull to only enough cows to get a reliable measure of his breeding value. Under this system only a small proportion of the cow population needs to be mated

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TABLE 1.--Number of sire records summarized 08-64, by State, by breed

State	Ayrshire	Guernsey	Holstein	Jersey	Brown Swiss	Shorthorn	Red Dane	Mixed	Red Poll	Total
	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number
Maine----------------	13	45	103	29	8	3	-	-	-	201
New Hampshire--------	24	36	123	32	10	4	-	-	-	229
Vermont--------------	26	48	211	84	26	2	-	-	-	397
Massachusetts--------	35	67	196	54	20	-	-	-	-	372
Rhode Island---------	8	12	62	9	-	-	-	-	-	91
Connecticut----------	25	84	191	42	15	-	-	-	-	357
New York-------------	59	127	682	123	50	6	1	1	-	1,049
New Jersey-----------	7	91	187	35	26	-	-	-	-	346
Pennsylvania---------	48	277	536	85	42	11	-	-	-	999
Ohio-----------------	27	143	390	154	55	6	-	-	-	775
Indiana--------------	17	128	288	82	41	9	-	1	-	566
Illinois-------------	19	121	311	54	47	7	-	-	1	560
Michigan-------------	12	57	347	51	34	4	2	-	-	507
Wisconsin------------	12	123	514	51	62	15	-	-	-	777
Minnesota------------	30	70	295	40	52	15	-	-	-	502
Iowa-----------------	24	69	319	67	61	25	-	-	1	566
Missouri-------------	-	58	141	38	9	9	-	-	-	255
North Dakota---------	1	12	67	6	14	3	-	-	1	104
South Dakota---------	11	9	111	9	12	-	-	-	1	153
Nebraska-------------	1	33	124	10	25	5	-	-	-	198
Kansas---------------	13	39	185	20	26	6	-	-	-	289
Delaware-------------	4	20	85	10	4	-	-	-	-	123
Maryland-------------	30	92	310	32	38	2	-	-	-	504
Virginia-------------	18	96	283	35	19	1	-	-	-	452
West Virginia--------	12	19	109	26	3	-	-	-	-	169
North Carolina-------	13	74	205	57	21	-	-	-	-	370
South Carolina-------	2	87	111	45	18	-	-	-	-	263
Georgia--------------	12	41	123	42	16	-	-	-	-	234
Florida--------------	10	76	51	44	9	-	-	-	-	190
Kentucky-------------	6	29	132	46	10	-	-	-	-	223
Tennessee------------	5	59	96	85	13	5	-	-	-	263
Alabama--------------	6	43	68	50	7	1	-	-	-	175
Mississippi----------	10	41	36	57	6	-	-	-	-	150
Arkansas-------------	1	16	53	14	4	6	-	-	-	94
Louisiana------------	-	43	34	28	4	-	-	-	-	109
Oklahoma-------------	9	29	88	21	9	14	-	-	-	170
Texas----------------	9	35	136	66	22	-	-	-	-	268
Montana--------------	3	6	31	5	7	-	-	-	-	52
Idaho----------------	4	44	123	44	9	2	-	-	-	226
Wyoming--------------	-	1	20	-	-	-	-	-	-	21
Colorado-------------	3	34	107	17	21	3	-	-	-	185
New Mexico-----------	-	22	44	6	-	-	-	-	-	72
Arizona--------------	-	33	67	6	3	-	-	-	-	109
Utah-----------------	2	25	128	21	4	-	-	-	-	180
Nevada---------------	-	3	8	25	-	-	-	-	-	36
Washington-----------	11	67	163	43	14	4	-	-	-	302
Oregon---------------	7	67	82	80	17	3	-	-	-	256
California-----------	2	36	140	32	8	-	-	-	-	218
Puerto Rico----------	-	-	8	-	-	-	-	-	-	8
Hawaii---------------	-	-	2	-	-	-	-	-	-	2
Alaska---------------	-	-	1	-	8	-	1	-	-	10
Total----------	212	1,090	3,189	798	250	79	3	2	1	1/14,727 2/5,624

1/ Represents the number of individual sire records sent to States.
2/ Represents the number of sires summarized.

to unproved bulls. Consequently, most cows can be mated to the best proved bulls currently available. The percentage of cows to be bred in testing young bulls depends heavily on the proportion of cows on official testing and would be minimal when all herds are tested or when young bulls are used only in tested herds. In an example of an AI service area that had a testing rate near the U.S. average, Van Vleck (3) has shown that maximum genetic progress occurs when 75 percent of the cows are mated to proved sires and 25 percent to young bulls. However, if all herds had been on test, it would have been necessary to breed only about 3 percent of the cows to young sires in order to provide the same number of tested daughters.

What risk must a dairyman take when he uses an unproved bull that a stud is sampling? The answer to this question depends largely upon how well the young bull was selected. The genetic merit of a young bull depends upon the breeding value of his parents. If these parents have breeding values of +2,000 or more pounds of milk, a similar level of genetic potential is expected from the progeny. Such outstanding parents are available and can be found in the DHIA Sire Summary List and in the DHIA Cow Performance Index List. The young bulls resulting from the mating of outstanding parents represent new models of the very best genetic material presently available. On the other hand, if the breeding values of parents of young bulls selected for sampling in AI are no better than breed average, the progeny of the young bulls can be expected to be no better than breed average in genetic merit.

Practical results from New York and North Carolina show that progeny of young bulls that were selected and sampled in AI compare favorably with progeny of older bulls in AI. The following tabulation, which represents a comparison of progeny from young sampled bulls with their herdmates in New York and North Carolina, shows that the use of selected young bulls in AI resulted in increased production.

	Number of young bulls sampled and AI proved	Deviations 1/	
		Milk	Fat
North Carolina	23	+ 52	+ 1
New York	34	+181	+10

1/ Measured as deviations from herdmates in North Carolina and as differences from breed average in New York.

The real value and great potential of a young bull selection and sampling program, however, is demonstrated by the use of 22 out of a total of 57 young bulls that were held for extensive use in AI. These bulls sired progeny that were greatly superior to herdmates and to the breed average, as can be seen from the following tabulation:

	Number of bulls saved	Deviations [1]	
		Milk	Fat
North Carolina	7	+638	+20
New York	15	+519	+25

---

[1] Measured as deviations from herdmates in North Carolina and as differences from breed average in New York.

Matings made after enough cows have been serviced to insure an adequate number of progeny for a reliable proving are of little value. However, such services would be of much more value if they were made to sample additional bulls. Only tested cows can contribute to a proof. Consequently, there is little merit in using unproved bulls in herds not on some form of official testing.

The average breeding value of well selected young bulls being sampled in AI may be expected to exceed the average of all others currently available in AI, but it can hardly be expected to exceed that of the very top of those having been thoroughly sampled. In a theoretical example of the use of both young and highly selected proved bulls in AI and under maximum net return conditions, Van Vleck (3) has shown that the daughters of proved bulls should exceed those of young bulls by approximately 380 pounds of milk per year. However, it is emphasized that a well-planned and executed total sire-testing program that produces maximum rates of genetic progress for the dairy cow population must include the sampling of young sires. This requires the cooperation of many herds.

It is not advisable for a herd to use only young bulls, especially only one or several young bulls. However, no great risk is involved if only a small percentage of the herd is used in sampling young bulls in AI and especially if the bulls being sampled have sires and dams with clearly indicated and demonstrated superior breeding value for production. Dairymen who cooperate in the sampling of young sires are rendering a real service to the AI stud involved and to the industry at large.

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PESTICIDES AND AGRICULTURE

The following are excerpts taken from a talk by Dr. Robert J. Anderson, Deputy Administrator, Agriculture Research Service, USDA, at the 7th CDC Biennial Veterinary Conference, Atlanta, Ga., August 7, 1964.

* * * * * *

"You all know that pesticides are a major ingredient of today's modern technology. Without them, production of crops and livestock would be curtailed and the quality of farm products would be lowered. There would be large losses in quantity and quality of food products in marketing and storage, and consumers would probably pay higher prices for poorer products. Production of timber would be reduced and buildings and other structures in which wood products are used would be damaged. Inability to control pests could create serious hazards to human health and welfare. The level of living that we all enjoy would be reduced.

"It's true, of course, that these pesticides are powerful substances, and, if misused, can be harmful to man, animals, plants, wildlife, and beneficial insects. The Department of Agriculture recognizes these dangers, just as it recognizes our dependence upon these chemical materials. The only solution to this dilemma is through a great expansion of pest-control research, an intensified education effort on proper use of these materials, and a strengthening of pesticide regulations at all levels of government.

"Only a few weeks ago, the President, acting upon the recommendation of the Secretary of Agriculture, asked Congress for an additional $29 million to intensify our work in these areas. We feel this will speed up the development of new and improved pesticides that can be used with the greatest efficiency and safety *** as well as techniques for controlling pests that require minimum amounts of pesticidal chemicals or none at all.

"In the meantime, however, we face some rather critical problems that demand immediate solutions. The most baffling are those associated with the concepts of 'zero tolerance' and 'non-residue' registration. The strict application of these concepts in the use of pesticides on food crops is making some farmers inadvertent offenders of the law and making it difficult for the Department to make recommendations based on current knowledge that won't be outdated in a short time.

"The labeling and marketing of pesticides in interstate commerce is, as you may know, governed by the Federal Insecticide, Fungicide, and Rodenticide Act. After a new pesticide has been developed in an industrial laboratory, an application is submitted to USDA asking that it be registered for use. If the compound is not to be used on a food crop, USDA reviews the experimental data submitted with the application. The compound is registered if it is found that there is no undue hazard to man and domestic animals *** and if convincing evidence has been submitted to prove that the product is safe and effective for the proposed use when applied according to label instructions.

"If, however, the pesticide is proposed for use of food crops, the application for registration must list each crop on which it is to be applied, and must present analytical data on residues and toxicity.

"The information is studied by scientists of the Pesticides Regulation Division of the Department's Agricultural Research Service. If it can be proved that the product leaves no residue on a particular crop when used as directed, the compound is then registered for use on a no-residue basis. But if the compound leaves a residue, USDA delays registration until an adequate residue tolerance has been established by the Food and Drug Administration.

* * * * * *

"So far, some 60,000 pesticide products, utilizing about 600 active chemicals, have been registered. About two-thirds of these products have been accepted for use on raw agricultural commodities. Over 6,000 such uses are registered and more than half are on a 'no-residue' basis.

* * * * * *

"The development of increasingly sophisticated methods of analysis has rendered the 'no-residue' and 'zero tolerance' concepts almost meaningless, because the levels of detection are constantly being lowered by these new methods. Chemists can determine residues at fantastically low levels -- in parts per billion or even trillion -- whereas a couple of years ago residues were measured in parts per million. With such methods of detection, it has become almost impossible to use a product today without leaving some measurable residue.

"In a number of recent instances, farmers have applied a given pesticide in good faith, in accordance with current instructions, only to find their products subject to seizure because a previously undetectable level of residue has been discovered, no matter how infinitesimal or insignificant in terms of human health.

"This was the situation in Washington, D. C. recently when new and highly sensitive testing procedures revealed traces of heptachlor and dieldrin in milk from some farms in Pennsylvania and Maryland. The insecticides had been applied -- according to registered and recommended use -- to alfalfa which was later fed to dairy cows. Yet, in view of the zero tolerance, when residues of heptachlor and dieldrin were found in alfalfa and in milk, we had no choice but to cancel registration for forage use of both chemicals.

"Recognizing the seriousness of this problem, the Secretaries of Agriculture and Health, Education, and Welfare recently joined in a request to the National Academy of Sciences-National Research Council that a committee of distinguished scientists be established to review the entire problem of 'zero tolerances' and 'no-residue' registrations.

"The Academy has agreed to undertake this study and we should have its recommendations by the end of this year.

* * * * * *

"Because you are in a position to use this understanding to good advantage, let me urge you to help put across the message of safe use of pesticides at every available opportunity -- every time you talk to a farmer *** every time you talk to local groups *** every time you meet with private practitioners who advise farmers *** in fact, in all of your day-to-day contacts with all segments of the public. Don't preach fear, but emphasize sanity in the handling, storage, and use of pesticides."

* * * * * *

USE PESTICIDES SAFELY

If you use pesticides, apply them only when needed and handle them with care. Follow the directions and heed all precautions on the container label. If pesticides are handled or applied improperly, or if unused portions are disposed of improperly, they may be injurious to humans, domestic animals, desirable plants, honey bees and other pollinating insects, fish, and wildlife, and may contaminate water supplies.

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ARS-44-152
Dairy-Herd-Improvement Letter (Vol. 40, No. 8)

November-December 1964

DHIA COWS AVERAGE 11,685 POUNDS OF MILK

In 1963-64, DHIA cows produced 11,685 pounds of milk and 447 pounds of butterfat on a cow-year basis. This record level of production was made by 1,746,475 cows in 35,689 herds averaging 49.4 cows per herd. It is an increase of 1.6 cows per herd, and 399 pounds of milk and 13 pounds of butterfat per cow over 1962-63.

DHIA COWS EXCEED NON-DHIA COWS BY 4,258 POUNDS OF MILK

The importance of DHIA recordkeeping continues to be increasingly evident. In 1963, DHIA cows were superior in milk yield to non-DHIA cows by 61 percent, or 4,258 pounds. With milk in DHIA herds valued at $4.50 per hundredweight, this amounts to a yearly gross income advantage of $192 per cow and $9,600 per 50-cow herd.

During the 3-year period since 1960, yearly increases in milk yield per cow have been 242 pounds in DHIA and 141 pounds in all other herds. Thus in addition to the 4,258 pounds superiority in milk yield in 1963, the rate of increase has been 72 percent more rapid for DHIA cows since 1960. Such statistics clearly demonstrate the importance of, and results from, participation in DHIA recordkeeping. A summary of the production performance of cows in DHIA and non-DHIA herds in the United States is shown in Table 1.

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DHIA STANDARD SUMMARIES 1963-64

Table 2 provides a 10-year summary of DHIA cow-year averages for herds reporting complete information. In 1963-64, 1,173,099 cows from herds with complete reports averaged 11,428 pounds of milk and 439 pounds of butterfat. They were fed an average of 4,200 pounds of concentrates, 9,800 pounds of succulent forage, 3,800 pounds of dry forage, and were on pasture 151 days. They produced a product valued at $521 ($4.56 per cwt.), were fed at an estimated cost of $237, and returned an estimated $284 over feed cost. Shown below is a summary of the 10-year change since 1954-55.

	10-year change from 1954-55 to 1963-64	
	Gross change	Percent change
Cows per herd	+ 13.5 cows	+47.2
Per cow		
Milk yield	+2,167 pounds	+23.4
Butterfat percentage	- .10 points	- 2.5
Butterfat yield	+ 74 pounds	+20.3
Concentrates fed	+1,400 pounds	+50.0
Succulent forage fed	+3,800 pounds	+63.3
Dry forage fed	+ 100 pounds	+ 2.7
Time on pasture	- 27 days	-15.2
Value of product	+ 92 dollars	+21.4
Price per cwt. of milk	- 7 dollars	- 1.5
Cost of concentrates	+ 31 dollars	+34.8
Feed cost	+ 54 dollars	+29.5
Income over feed cost 1/	+ 38 dollars	+15.4

1/ Most of the change represented occurred during the first 5 years.

Summaries of DHIA Standard herd statistics for 1963-64 are shown in Tables 3 through 8. Cow-year averages for each State reporting production data are shown in Table 3 and for each State having complete reports in Table 4.

Stratifications of herd averages by level of butterfat production, concentrates fed, and feed cost per cwt. of milk are given in Tables 5, 6, and 7, respectively. The trends apparent in these tabulations should be interpreted with caution because of the confounding effects resulting from disproportionate representation of breeds, milk prices, and feeding systems and costs.

Within-breed stratifications of DHIA herd averages by milk yield are shown in Table 8. Breeds are tabulated separately in order to reduce the complicating effect of breed-to-breed differences in production and feed and milk prices. Such tabulations are useful in establishing guidelines for production efficiency, especially within breeds. On the basis of the long-established thumb rule that profitable production can be realized only if income more than doubles feed cost, milk production levels below which profit will not be expected under average conditions in the United States are shown below.

Breed	Production level at which income at least doubles feed cost		
	Minimum milk level	Herds not exceeding minimum level	
	(Pounds)	(Number)	(Percent)
Ayrshire	8,000	50	9.6
Guernsey	6,300	74	3.3
Holstein	8,400	513	2.5
Jersey	5,100	37	2.3
Brown Swiss	8,500	72	11.2
Milking Shorthorn 1/	8,400	65	1/54.2

1/ Only 120 Milking Shorthorn herds represented.

Only 3.0 percent of the DHIA herds produced less than the milk levels indicated above. Approximately 1,695 herds (6 percent) reported income over feed cost of less than $200 per cow while 9,351 herds (34 percent) reported values of $300 or more. However, if it is assumed that milk production levels of 7,000 pounds per cow are minimal for profit among herds at large, upwards of 50 percent of the cows which are not enrolled in DHIA are marginal or sub-marginal producers.

In the Holstein herds summarized in Table 8, estimated income over feed cost increased approximately $32 per cow for each 1,000-pound increase in milk production. As herds increased from 8,000 to 16,000 pounds in milk yield, feed cost increased 63 percent, feed cost per cwt. of milk decreased 17 percent, and income over feed cost increased 125 percent. Similar although slightly less-pronounced trends are evident in the other breeds.

A further summary is shown below for the Holstein data in Table 8 in an effort to simplify certain trends. Shown for three broad levels of milk production are averages of milk production, herd size, and value of product per cwt., along with changes in feed cost, feed cost per cwt. of milk, and income over feed cost for each 1,000-pound increase in milk yield.

Broad levels of milk production	Herds	Milk per cow	Cows per herd	Milk price	Average change per 1,000-pound increase in milk within broad level: Feed cost	Feed cost per cwt. of milk	Income over feed cost
	No.	Lb.	No.	$/Cwt.	$	$	$
Low	6,389	8,552	48	4.37	+13	-0.12	+26
Medium	8,477	12,501	42	4.23	+14	- .03	+30
High	5,309	15,948	40	4.37	+18	- .01	+38

The above summary reflects averages and trends within and between three broad herd average levels of milk yield. Although some disproportionality in milk price and feed cost probably exists among the above three groups, it is generalized that increased levels of feeding and estimated income over feed cost were economically advantageous in each of the three broad levels of production. This apparent benefit, however, was considerably greater among low level herds where maintenance requirements are proportionately greater. Within the limits of the scope and accuracy of these data, it can only be assumed that cost factors other than those associated with feeding are major contributors to production efficiency at average and high herd levels of milk yield in DHIA.

It is important to recognize that the applicability of these DHIA herd statistics to individual herds will have the greatest meaning where local feeding systems and costs and milk markets are reasonably consistent with U.S. averages. Herds of the same breed and having similar levels of milk yield may differ considerably in production efficiency if a wide range exists in milk price, feeding systems and costs, and labor and other costs.

OWNER-SAMPLER HERD SUMMARIES 1963-64

Summaries of Owner-Sampler herd statistics are shown in Tables 9 through 14. A total of 385,493 cows in 13,574 herds averaged 10,885 pounds of milk and 404 pounds of butterfat in 1963-64. This represents an increase of 179 pounds of milk and 8 pounds of butterfat over 1962-63. Cow-year averages by States for all data reported are given in Table 9. Similar averages based on complete reports are shown in Table 10. Stratifications of Owner-Sampler herds by butterfat production, level of concentrates fed, and feed cost per cwt. of milk are shown in Tables 11, 12, and 13, respectively. Summaries by breed with stratification by level of milk yield are shown in Table 14.

TABLE 1.--Summary of production of Standard DHIA and non-DHIA cows

Year 1/	Standard DHIA cows						All cows		Non-DHIA cows	Superiority of DHIA
	Cows	Percent of all cows	Cows per herd	Milk 2/	Fat 2/	Fat 2/	Cows 3/	Milk	Milk	Milk
	Number	Percent	Number	Pounds	Pounds	Percent	Thousands	Pounds	Pounds	Pounds
1906	239	-	7.7	5,300	215	4.06	17,592	-----	-----	-----
1920	203,472	1.0	17.0	6,175	247	4.00	20,704	-----	-----	-----
1930	507,549	2.3	18.2	7,642	303	3.96	22,218	4,508	4,435	3,207
1940	676,141	2.9	24.2	8,133	331	4.07	23,671	4,622	4,519	3,614
1950	1,088,872	5.0	27.2	9,172	370	4.03	21,944	5,314	5,113	4,059
1960	1,746,752	10.0	42.3	4/10,561	4/409	4/3.87	17,560	7,002	6,606	3,955
1961	1,867,469	10.8	43.9	10,796	418	3.87	17,367	7,223	6,793	4,003
1962	1,958,355	11.5	46.6	11,032	426	3.86	17,050	7,391	6,919	4,113
1963	2,006,534	12.1	47.8	11,286	434	3.85	5/16,538	5/7,545	5/7,028	5/4,258
1964	2,010,144	12.5	49.4	11,685	447	3.83	6/16,072	-----	-----	-----

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1/ The year for which the January 1 Standard cow enrollment is given.
2/ Cow-year production for the year stated for herds reported to the national office.
3/ Average number of milk cows on farms during the year, excluding heifers not fresh; estimated by the Statistical Reporting Service.
4/ Average of 1959 and 1961 because of change in national testing year in 1960.
5/ Estimated from early reports by the Statistical Reporting Service; subject to change when final data are received.
6/ Number of milk cows in United States in June 1964; estimated by Statistical Reporting Service.

TABLE 2.--A 10-year summary of DHIA cow-year averages for herds reporting complete information

Year	Herds	Cows	Cows per herd	Milk	Fat	Fat	Conc. fed	Succ. forage fed	Dry forage fed	Days on pasture	Value of product	Cost of conc.	Feed cost	Income over feed cost
	No.	No.	No.	Lb.	Pct.	Lb.	Cwt.	Cwt.	Cwt.	No.	$	$	$	$
1954-55	28,727	822,465	28.6	9,261	3.94	365	28	60	37	178	429	89	183	246
1955-56	28,254	849,344	30.1	9,470	3.93	372	29	64	39	174	433	86	181	252
1956-57	27,133	863,275	31.8	9,621	3.92	377	30	66	39	173	448	88	183	265
1957-58	27,525	900,269	32.7	9,787	3.91	383	31	69	40	171	462	92	190	272
1958-59	27,796	902,074	32.5	10,042	3.89	391	33	75	40	174	475	93	195	280
1959-60 1/	23,220	795,892	34.3	10,045	3.89	391	33	76	40	169	479	93	196	283
1960-61	18,644	689,710	37.0	10,048	3.88	390	32	78	39	163	485	94	198	287
1961-62	22,853	882,827	38.6	10,676	3.87	413	36	82	40	165	502	103	207	295
1962-63	27,093	1,089,290	40.2	10,983	3.85	423	39	92	40	156	501	113	222	279
1963-64	27,893	1,173,099	42.1	11,428	3.84	439	42	98	38	151	521	120	237	284

1/ Average of 1958-59 and 1960-61 because of change in testing year.

TABLE 3.--Summary of 1963-64 Standard DHIA cow-year production, by States [1]

State	Herd records	Cow-years	Cows per herd	Cow-year average production		
				Milk	Fat	Fat
	Number	Number	Number	Pounds	Percent	Pounds
Alabama--------------:	224	18,016	80.4	8,441	4.0	335
Alaska---------------:	2	51	25.5	12,552	3.9	493
Arizona--------------:	145	19,522	134.6	12,533	3.6	457
Arkansas-------------:	65	3,058	47.0	9,603	3.7	355
California-----------:	1,842	288,993	156.9	12,666	3.8	482
Colorado-------------:	191	11,211	58.7	11,789	3.7	438
Connecticut----------:	435	21,647	49.8	12,119	4.0	480
Delaware-------------:	95	4,064	42.8	11,552	3.9	447
Florida--------------:	98	15,945	162.7	8,749	4.1	361
Georgia--------------:	300	19,909	66.4	10,123	3.9	391
Idaho----------------:	457	17,375	38.0	11,110	3.9	436
Illinois-------------:	1,462	55,109	37.7	11,790	3.8	451
Indiana--------------:	949	33,927	35.8	11,724	3.9	458
Iowa-----------------:	1,545	50,906	32.9	11,349	3.8	426
Kansas---------------:	646	27,443	42.5	11,512	3.8	433
Kentucky-------------:	356	14,055	39.5	10,343	3.9	400
Louisiana------------:	50	3,680	73.6	7,892	3.9	309
Maine----------------:	469	18,605	39.7	11,597	4.0	465
Maryland-------------:	736	38,848	52.8	11,145	3.9	435
Massachusetts--------:	486	20,849	42.9	11,577	4.0	459
Michigan-------------:	1,812	70,933	39.1	12,356	3.8	464
Minnesota------------:	3,205	100,242	31.3	11,253	3.7	419
Mississippi----------:	124	7,968	64.3	7,512	4.2	313
Missouri-------------:	393	16,984	43.2	10,690	3.9	418
Montana--------------:	70	3,199	45.7	11,341	3.7	416
Nebraska-------------:	296	12,332	41.7	10,993	3.8	417
Nevada---------------:	41	3,412	83.2	11,874	3.8	450
New Hampshire--------:	281	11,933	42.5	11,256	4.1	456
New Jersey-----------:	476	25,227	53.0	11,856	3.9	458
New Mexico-----------:	30	4,797	159.9	12,529	3.6	452
New York-------------:	3,528	161,248	45.7	12,458	3.7	464
North Carolina-------:	725	38,177	52.7	11,124	3.8	421
North Dakota---------:	166	5,672	34.2	10,866	3.7	404
Ohio-----------------:	1,824	66,640	36.5	11,957	3.8	457
Oklahoma-------------:	142	8,138	57.3	10,457	3.7	390
Oregon---------------:	378	21,994	58.2	10,502	4.2	441
Pennsylvania---------:	4,450	157,314	35.4	11,996	3.9	471
Puerto Rico----------:	9	2,142	238.0	7,580	3.4	260
Rhode Island---------:	44	2,177	49.5	11,715	3.9	460
South Carolina-------:	225	18,175	80.8	9,541	4.0	383
South Dakota---------:	96	3,957	41.2	10,899	3.6	391
Tennessee------------:	444	22,490	50.7	9,364	4.1	382
Texas----------------:	297	22,638	76.2	10,195	3.7	380
Utah-----------------:	359	15,822	44.1	12,330	3.7	459
Vermont--------------:	886	40,767	46.0	10,828	4.0	435
Virginia-------------:	1,014	57,352	56.6	11,364	3.8	434
Washington-----------:	674	37,508	55.6	12,012	3.9	472
West Virginia--------:	217	9,217	42.5	10,233	3.8	392
Wisconsin------------:	2,903	113,829	39.2	11,850	3.8	446
Wyoming--------------:	27	978	36.2	11,066	3.6	402
Total or average------------:	35,689	1,746,475	48.9	11,685	3.8	447

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[1] Includes all production data reported.

TABLE 4.--Summary of 1963-64 Standard DHIA records, by States [1]

State	Herds	Body weight	Cow-years	Milk	Fat	Fat	Days in milk	Concentrates fed	Succ. forage fed	Dry forage fed	Value of product	Cost of concentrates	Feed cost	Income over feed cost	Feed cost per cwt. milk
	No.	Cwt.	No.	Lb.	Pct.	Lb.	Pct.	Cwt.	Cwt.	Cwt.	$	$	$	$	$
Alabama--------:	223	10	17,958	8,448	4.0	335	82	43	52	17	481	135	215	266	2.55
Arkansas-------:	65	11	3,058	9,603	3.7	355	83	41	27	42	428	122	213	215	2.22
Connecticut----:	397	12	19,720	12,129	4.0	480	84	48	140	32	686	180	323	363	2.66
Delaware-------:	94	12	4,050	11,583	3.9	448	85	41	137	19	588	125	284	304	2.45
Florida--------:	91	10	14,548	8,726	4.2	364	84	49	43	20	590	156	241	349	2.76
Georgia--------:	289	11	19,408	10,129	3.9	392	83	42	75	18	606	136	234	372	2.31
Idaho----------:	318	11	11,707	11,115	4.0	441	85	28	63	79	432	77	194	238	1.74
Illinois-------:	1,438	12	54,306	11,790	3.8	451	85	40	82	41	456	94	191	265	1.62
Indiana--------:	948	12	33,866	11,724	3.9	458	85	40	101	36	482	97	209	273	1.78
Iowa-----------:	1,533	12	50,309	11,354	3.8	427	85	43	88	42	408	99	175	233	1.54
Kansas---------:	636	12	27,034	11,513	3.8	433	85	45	111	39	468	118	217	251	1.89
Kentucky-------:	338	11	13,260	10,333	3.9	400	83	36	69	31	447	104	202	245	1.96
Louisiana------:	47	10	3,389	7,973	3.9	308	78	35	44	14	459	114	183	276	2.29
Maine----------:	468	12	18,585	11,596	4.0	465	85	43	62	49	599	158	272	327	2.35
Maryland-------:	577	12	29,512	11,223	3.9	442	85	42	126	24	544	131	289	255	2.57
Massachusetts--:	474	12	20,249	11,595	3.9	457	84	45	107	42	676	167	316	360	2.72
Michigan-------:	1,739	12	67,998	12,372	3.8	465	87	43	98	45	505	68	200	305	1.61
Minnesota------:	3,105	12	97,290	11,258	3.7	419	85	40	87	50	392	79	155	237	1.38
Mississippi----:	121	10	7,759	7,529	4.2	315	81	33	68	14	389	103	170	219	2.26
Missouri-------:	379	12	16,128	10,682	3.9	418	84	39	67	33	442	103	197	245	1.84
Montana--------:	44	13	1,998	11,418	3.6	415	86	35	51	86	490	81	188	302	1.65
Nebraska-------:	286	12	11,954	11,014	3.8	416	85	41	112	48	433	104	190	243	1.72
New Hampshire--:	281	11	11,933	11,256	4.1	456	84	40	84	48	607	148	292	315	2.59
New Jersey-----:	378	12	20,164	11,816	3.9	456	84	41	150	32	622	139	308	314	2.60
New York-------:	3,525	12	161,162	12,459	3.7	464	84	41	112	43	562	138	258	304	2.07
North Carolina-:	714	12	37,258	11,054	3.8	419	85	44	158	13	627	148	294	333	2.66
North Dakota---:	161	13	5,460	10,906	3.7	406	77	36	98	46	402	76	148	254	1.36
Ohio-----------:	1,476	12	53,018	11,952	3.8	458	86	43	111	40	499	108	241	258	2.02
Oklahoma-------:	141	11	8,131	10,459	3.7	390	82	42	56	47	486	115	218	268	2.08
Oregon---------:	18	10	843	9,399	4.5	422	86	32	40	50	489	101	216	273	2.29
Pennsylvania---:	4,427	11	156,243	11,985	3.9	470	--	45	99	38	563	138	276	287	2.30
Puerto Rico----:	8	12	1,946	7,753	3.4	267	75	38	50	--	603	136	205	398	2.64
Rhode Island---:	42	12	2,026	11,800	3.9	461	85	46	153	32	754	176	367	387	3.11
South Carolina-:	221	11	18,009	9,550	4.0	384	83	38	107	17	550	120	228	322	2.39
South Dakota---:	95	13	3,931	10,871	3.6	390	83	39	91	53	431	86	158	273	1.45
Tennessee------:	441	11	22,320	9,371	4.1	382	84	34	88	23	463	103	204	259	2.18
Texas----------:	281	11	21,160	10,185	3.7	380	82	47	54	40	505	135	245	260	2.41
Vermont--------:	863	11	39,843	10,844	4.0	435	84	36	66	46	527	134	248	279	2.28
Virginia-------:	996	12	56,363	11,393	3.8	435	85	43	126	26	585	142	290	295	2.55
Washington-----:	3	11	212	10,584	3.8	407	--	27	79	30	485	87	200	285	1.89
West Virginia--:	211	12	8,950	10,281	3.8	394	84	37	85	31	488	116	236	252	2.29
Wyoming--------:	1	14	41	11,067	3.5	382	82	31	100	57	520	66	177	343	1.60
Total or average	27,893	12	1,173,099	11,428	3.8	439	84	42	98	38	521	120	237	284	2.08
Total or average [2]---:	35,689		1,746,475	11,685	3.8	447									

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[1] Cow-year basis, based on complete individual herd reports.
[2] Based on all data reported in Table 3.

TABLE 5.--Summary of 1963-64 Standard DHIA yearly herd averages, stratified by butterfat pounds [1]

Grouping	Herds	Body weight	Cow-years	Milk	Fat	Fat	Days in milk	Concentrates fed	Succ. forage fed	Dry forage fed	Value of product	Cost of concentrates	Feed cost	Income over feed cost	Feed cost per cwt. milk
Lb.	No.	Cwt.	No.	Lb.	Pct.	Lb.	Pct.	Cwt.	Cwt.	Cwt.	$	$	$	$	$
125-174	13	10	43.7	3,815	4.1	156	62	19	44	26	194	56	121	73	3.14
175-224	75	10	65.8	5,414	3.8	208	71	25	48	25	255	71	138	117	2.57
225-274	364	11	53.6	6,626	3.9	256	77	28	57	30	310	81	162	148	2.47
275-324	1,161	11	46.8	7,880	3.9	304	81	32	66	34	353	88	176	177	2.26
325-374	3,188	11	44.0	9,124	3.9	353	83	35	74	38	401	96	193	208	2.13
375-424	6,092	12	42.5	10,400	3.9	401	84	39	83	40	453	106	211	242	2.05
425-474	7,602	12	41.7	11,718	3.8	449	85	42	91	41	512	118	232	280	2.00
475-524	5,811	12	40.5	13,010	3.8	497	86	46	98	42	574	131	256	318	1.98
525-574	2,751	12	39.8	14,208	3.8	545	87	50	105	42	637	145	279	358	1.97
575-624	680	12	39.0	15,308	3.9	594	87	53	109	43	697	157	295	402	1.94
625-674	127	13	40.7	16,551	3.9	643	88	58	118	44	782	177	326	456	1.98
675-724	27	12	37.7	17,749	3.9	689	89	60	104	49	835	192	363	472	2.05
725-774	2	13	14.5	18,012	4.1	735	91	58	131	57	811	139	306	505	1.70
Total or average	27,893	12	42.1	11,517	3.8	443	85	42	89	40	508	118	231	277	2.04

[1] All groupings and the total or average line are on a herd basis.

TABLE 6.--Summary of 1963-64 Standard DHIA yearly herd averages, stratified by cwt. concentrates fed [1]

Grouping	Herds	Body weight	Cow-years	Milk	Fat	Fat	Days in milk	Concentrates fed	Succ. forage fed	Dry forage fed	Value of product	Cost of concentrates	Feed cost	Income over feed cost	Feed cost per cwt. milk
Cwt.	No.	Cwt.	No.	Lb.	Pct.	Lb.	Pct.	Cwt.	Cwt.	Cwt.	$	$	$	$	$
No Rept.	3	12	20.3	7,578	3.8	290	85	--	77	70	364	---	146	218	1.78
Under 5	2	12	46.6	11,273	3.8	434	87	1	161	41	515	4	137	378	1.17
05-14	64	11	41.9	8,156	3.9	319	78	12	89	51	329	38	140	189	1.81
15-24	1,038	11	41.0	8,494	4.1	347	82	22	67	42	371	62	157	214	1.92
25-34	6,099	11	43.0	9,964	4.0	398	84	30	81	40	442	85	190	252	1.96
35-44	10,152	12	42.4	11,428	3.9	440	85	39	91	40	502	111	225	277	2.01
45-54	7,224	12	41.4	12,570	3.8	473	85	49	96	41	552	138	258	294	2.08
55-64	2,556	12	40.1	13,293	3.7	496	86	58	93	40	589	165	287	302	2.19
65-74	619	12	43.5	13,593	3.7	503	86	68	88	37	608	189	305	303	2.27
75-84	115	12	50.9	13,977	3.7	520	86	78	80	39	652	221	336	316	2.44
85-Up	21	12	62.3	13,205	3.7	495	86	87	65	33	672	257	354	318	2.69
Total or average	27,893	12	42.1	11,517	3.8	443	85	42	89	40	508	118	231	277	2.04

[1] All groupings and the total or average line are on a herd basis.

TABLE 7.--Summary of 1963-64 Standard DHIA yearly herd averages,stratified by feed cost per cwt. milk [1]

Grouping	Herds	Body weight	Cow-years	Milk	Fat	Fat	Days in milk	Concentrates fed	Succ. forage fed	Dry forage fed	Value of product	Cost of concentrates	Feed cost	Income over feed cost	Feed cost per cwt. milk
Cents	No.	Cwt.	No.	Lb.	Pct.	Lb.	Pct.	Cwt.	Cwt.	Cwt.	$	$	$	$	$
Under 175	8,986	12	35.3	12,046	3.7	449	85	40	78	45	455	86	174	281	1.45
175-224	9,451	12	41.9	11,747	3.8	449	85	42	90	41	518	120	234	284	1.99
225-274	6,704	12	47.0	11,163	3.9	439	84	44	96	37	553	143	275	278	2.46
275-324	2,185	11	52.1	10,161	4.1	417	83	44	107	34	548	151	298	250	2.93
325-374	480	11	55.5	8,893	4.3	380	82	43	107	35	500	151	304	196	3.43
375-424	61	11	49.6	8,224	4.4	364	82	43	104	40	499	153	324	175	3.94
425-474	22	11	61.9	6,912	4.6	320	78	38	116	37	406	134	308	98	4.46
475-Up	4	10	48.1	4,758	4.6	220	60	24	77	36	281	86	234	47	4.91
Total or average	27,893	12	42.1	11,517	3.8	443	85	42	89	40	508	118	231	277	2.04

[1] All groupings and the total or average line are on a herd basis.

TABLE 8.--Summary of 1963-64 Standard DHIA yearly herd averages by breed, stratified by milk pounds [1/]

Grouping Lb.	Herds No.	Body weight Cwt.	Cow-years No.	Milk Lb.	Fat Pct.	Fst Lb.	Days in milk Pct.	Concen-trstes fed Cwt.	Succ. forage fed Cwt.	Dry forage fed Cwt.	Value of product $	Cost of concen-trstes $	Feed cost $	Income over feed cost $	Feed cost per cwt. milk $
AYRSHIRE															
Under 7,500	25	11	31.2	6,704	4.0	269	79	31	55	34	291	86	164	127	2.46
7,500- 8,499	53	11	35.4	8,049	4.0	324	81	31	64	34	373	92	185	188	2.29
8,500- 9,499	123	11	39.7	9,002	4.1	366	82	33	65	39	420	102	199	221	2.21
9,500-10,499	149	11	38.3	10,033	4.0	406	84	38	70	41	468	116	222	246	2.22
10,500-11,499	103	11	41.2	11,016	4.0	445	84	41	74	43	521	129	242	279	2.20
11,500-12,499	48	11	37.6	11,878	4.0	472	86	45	82	41	551	145	258	293	2.17
12,500-Up	21	12	34.4	12,998	4.0	515	86	48	91	41	586	150	270	316	2.08
Total or average	522	11	38.3	9,912	4.0	400	83	37	70	40	461	116	219	242	2.22
GUERNSEY															
Under 5,500	24	10	74.6	5,033	4.6	233	73	24	65	18	274	73	152	123	3.02
5,500- 6,499	68	10	48.4	6,095	4.7	289	79	28	55	29	326	79	164	162	2.69
6,500- 7,499	226	10	42.0	7,128	4.8	342	83	31	67	32	374	88	180	194	2.52
7,500- 8,499	508	10	41.2	8,038	4.8	386	85	32	64	34	418	92	188	230	2.34
8,500- 9,499	695	10	42.7	8,991	4.8	432	85	35	72	36	471	101	204	267	2.28
9,500-10,499	461	10	37.2	9,959	4.8	477	87	39	69	39	520	113	222	298	2.23
10,500-11,499	204	11	39.4	10,917	4.7	516	87	42	71	38	575	126	238	337	2.18
11,500-12,499	52	11	38.7	11,838	4.6	541	88	43	68	45	594	124	241	353	2.04
12,500-Up	9	12	37.1	13,748	4.3	585	87	49	62	45	648	130	240	409	1.75
Total or average	2,247	10	41.3	8,917	4.8	426	85	36	68	36	466	102	204	262	2.31
HOLSTEIN															
Under 6,500	50	11	58.5	5,985	3.6	218	73	25	71	28	272	73	154	118	2.57
6,500- 7,499	145	11	51.8	7,095	3.7	260	77	30	62	31	326	83	171	155	2.41
7,500- 8,499	353	12	45.3	8,069	3.7	299	81	31	74	34	353	87	178	175	2.21
8,500- 9,499	893	12	44.8	9,066	3.7	334	82	34	80	39	391	93	191	200	2.11
9,500-10,499	1,876	12	42.9	10,062	3.7	370	83	37	87	40	426	100	204	222	2.03
10,500-11,499	3,072	12	42.9	11,037	3.7	405	84	40	94	41	465	109	219	246	1.98
11,500-12,499	4,248	12	42.3	12,016	3.7	441	85	43	97	43	506	116	232	274	1.93
12,500-13,499	4,229	12	41.6	12,986	3.7	478	85	45	101	43	553	126	248	305	1.91
13,500-14,499	3,097	12	41.2	13,949	3.7	514	86	48	105	43	600	137	266	334	1.91
14,500-15,499	1,502	13	40.0	14,927	3.7	548	86	51	103	45	643	147	280	363	1.88
15,500-16,499	527	13	38.1	15,890	3.7	582	87	54	104	45	684	156	291	393	1.83
16,500-17,499	143	13	39.4	16,881	3.7	620	88	57	107	46	744	164	308	436	1.82
17,500-Up	40	13	40.7	18,094	3.7	663	89	63	111	46	817	186	338	479	1.87
Total or average	20,175	12	42.1	12,298	3.7	452	85	43	97	42	524	121	238	286	1.95
JERSEY															
Under 5,500	48	9	44.4	4,871	5.1	248	74	24	35	25	255	66	126	129	2.58
5,500- 6,499	132	9	47.0	6,067	5.1	307	81	28	51	28	322	79	153	169	2.53
6,500- 7,499	357	9	46.0	7,034	5.2	363	83	31	52	29	376	89	170	206	2.42
7,500- 8,499	481	9	44.1	8,020	5.1	413	85	34	56	33	430	99	187	243	2.33
8,500- 9,499	390	9	42.0	8,946	5.1	460	86	37	53	34	482	114	203	279	2.27
9,500-10,499	141	9	45.8	9,899	5.1	503	87	41	63	34	552	134	235	317	2.37
10,500-11,499	33	9	46.5	10,850	4.9	536	87	42	66	36	589	140	249	340	2.29
11,500-Up	13	10	39.3	12,394	4.4	540	88	44	83	39	593	123	249	343	2.01
Total or average	1,595	9	44.4	8,029	5.1	411	84	34	54	32	432	102	188	244	2.36
BROWN SWISS															
Under 7,500	19	12	30.4	6,964	4.1	282	78	28	59	33	282	67	142	140	2.04
7,500- 8,499	44	13	28.3	8,036	4.0	321	80	33	60	46	306	75	158	148	1.97
8,500- 9,499	91	12	29.4	9,010	4.1	366	83	37	77	42	373	91	185	188	2.06
9,500-10,499	146	12	30.6	9,966	4.1	409	84	39	81	47	422	98	198	224	1.98
10,500-11,499	153	13	31.2	10,998	4.1	453	85	42	78	44	462	108	212	250	1.93
11,500-12,499	116	13	32.8	11,926	4.1	487	87	45	87	49	511	117	234	277	1.96
12,500-13,499	54	13	29.6	12,884	4.2	536	87	46	81	51	552	119	238	314	1.84
13,500-Up	18	13	32.8	13,953	4.1	567	88	51	82	43	614	142	256	358	1.84
Total or average	641	13	30.8	10,567	4.1	433	85	41	79	46	445	104	207	238	1.96

TABLE 8.--Summary of 1963-64 Standard DHIA yearly herd averages by breed, stratified by milk pounds [1]--Continued

Grouping	Herds	Body weight	Cow-years	Milk	Fat	Fat	Days in milk	Concentrates fed	Succ. forage fed	Dry forage fed	Value of product	Cost of concentrates	Feed cost	Income over feed cost	Feed cost per cwt. milk
Lb.	No.	Cwt.	No.	Lb.	Pct.	Lb.	Pct.	Cwt.	Cwt.	Cwt.	$	$	$	$	$
MILKING SHORTHORN															
4,500- 5,499	1	11	35.4	4,938	3.5	171	56	27	--	77	222	81	171	51	3.46
5,500- 6,499	9	12	25.2	5,958	3.8	226	73	25	47	37	222	59	143	79	2.39
6,500- 7,499	18	12	27.8	7,146	3.8	270	78	29	43	48	273	79	172	101	2.40
7,500- 8,499	37	12	22.5	8,137	3.8	308	81	31	52	39	291	70	146	145	1.79
8,500- 9,499	30	12	22.9	9,001	3.8	342	82	33	39	49	346	82	172	174	1.91
9,500-10,499	16	13	22.1	9,987	3.7	370	85	37	38	46	345	87	158	187	1.58
10,500-11,499	7	12	25.9	10,981	3.7	401	84	32	57	37	410	70	161	249	1.46
11,500-12,499	2	13	29.6	12,018	3.9	470	86	51	113	32	487	134	249	238	2.06
Total or average	120	12	23.9	8,491	3.8	320	81	32	46	44	314	77	160	154	1.93
MIXED BREEDS															
Under 5,500	28	10	61.4	4,815	4.3	208	72	25	37	23	257	74	139	118	2.93
5,500- 6,499	46	10	65.9	6,130	4.2	260	79	28	40	23	325	85	158	167	2.58
6,500- 7,499	134	10	52.9	7,023	4.2	294	81	30	51	29	358	90	175	183	2.50
7,500- 8,499	247	11	60.1	8,032	4.2	337	83	35	64	28	411	104	194	217	2.42
8,500- 9,499	344	11	47.6	9,026	4.1	374	84	37	67	32	444	109	212	232	2.35
9,500-10,499	467	11	48.6	9,998	4.0	403	85	39	76	34	484	117	228	256	2.28
10,500-11,499	439	11	43.2	10,990	3.9	432	86	42	83	37	516	128	247	269	2.25
11,500-12,499	394	11	38.2	11,964	3.9	462	86	45	88	37	548	134	260	288	2.18
12,500-13,499	268	11	36.7	12,955	3.8	495	87	47	94	39	584	139	274	310	2.12
13,500-14,499	156	11	36.0	13,920	3.8	528	88	49	101	41	630	150	291	339	2.09
14,500-15,499	37	11	38.7	14,977	3.8	566	88	55	101	41	694	163	299	395	2.00
15,500-Up	19	11	28.6	16,213	3.7	601	90	57	117	41	708	158	312	396	1.93
Total or average	2,579	11	45.4	10,531	4.0	417	84	41	78	35	499	122	236	263	2.27

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[1] All groupings and the total or average line are on a herd basis.

TABLE 9.--Summary of 1963-64 Owner-Sampler cow-year production, by States [1]

State	Herd records	Cow-years	Cows per herd	Cow-year average production		
				Milk	Fat	Fat
	Number	Number	Number	Pounds	Percent	Pounds
Arizona-------------:	4	280	70.0	12,057	3.8	460
Arkansas------------:	26	955	36.7	9,152	3.7	340
Colorado------------:	17	513	30.2	10,770	3.8	414
Idaho---------------:	6	194	32.3	12,092	3.6	430
Illinois------------:	323	9,674	30.0	11,617	3.7	430
Indiana-------------:	228	6,127	26.9	10,988	3.9	433
Iowa----------------:	864	20,402	23.6	11,120	3.7	410
Kansas--------------:	43	1,240	28.8	10,663	3.7	398
Maryland------------:	9	341	37.9	9,066	3.8	343
Minnesota-----------:	965	24,318	25.2	10,646	3.6	388
Missouri------------:	5	127	25.4	8,787	4.4	386
Montana-------------:	11	552	50.2	10,922	3.8	414
Nebraska------------:	59	2,052	34.8	11,040	3.6	399
Nevada--------------:	2	92	46.0	10,555	4.4	461
North Dakota--------:	23	595	25.9	9,797	3.7	359
Ohio----------------:	535	13,460	25.2	11,207	3.8	422
Oklahoma------------:	13	586	45.1	10,705	3.7	392
Oregon--------------:	15	481	32.1	8,160	4.7	381
Pennsylvania--------:	1,096	30,100	27.5	11,089	3.9	427
Rhode Island--------:	1	13	13.0	10,200	4.1	417
South Dakota--------:	33	953	28.9	10,007	3.5	353
Utah----------------:	17	484	28.5	11,114	3.9	429
Vermont-------------:	139	4,620	33.2	8,997	4.2	378
Washington----------:	18	446	24.8	10,999	3.9	433
West Virginia-------:	10	440	44.0	8,609	4.0	346
Wisconsin-----------:	9,095	265,728	29.2	10,875	3.7	400
Wyoming-------------:	17	720	42.4	10,561	3.5	367
Total or average------------:	13,574	385,493	28.4	10,885	3.7	404

[1] Includes all production data reported.

TABLE 10.--Summary of 1963-64 Owner-Sampler DHIA records, by States [1]

State	Herds	Body weight	Cow-years	Milk	Fat	Fat	Days in milk	Concentrates fed	Succ. forage fed	Dry forage fed	Days on pasture	Value of product	Cost of concentrates	Feed cost	Income over feed cost	Feed cost per cwt. milk
	No.	Cwt.	No.	Lb.	Pct.	Lb.	Pct.	Cwt.	Cwt.	Cwt.	No.	$	$	$	$	$
Arkansas--------:	26	10	955	9,152	3.7	340	82	38	34	37	195	400	112	193	207	2.10
Illinois--------:	171	12	4,897	11,869	3.7	440	85	40	71	43	154	433	89	183	250	1.54
Indiana---------:	44	12	1,086	12,331	3.8	463	85	43	91	36	135	473	105	221	252	1.80
Iowa------------:	498	12	12,130	11,019	3.7	403	83	41	63	45	149	368	91	163	205	1.48
Kansas----------:	43	12	1,240	10,663	3.7	398	83	41	83	39	183	402	107	201	201	1.88
Minnesota-------:	818	12	20,296	10,653	3.6	387	83	38	84	51	114	354	75	151	203	1.42
Missouri--------:	5	10	127	8,787	4.4	386	85	33	43	35	208	329	77	148	181	1.69
Nebraska--------:	22	12	739	10,636	3.7	391	84	38	90	47	118	385	100	178	207	1.67
North Dakota----:	19	12	504	9,784	3.6	353	80	32	62	49	149	325	59	118	207	1.21
Ohio------------:	248	12	6,640	11,248	3.8	426	85	41	87	42	129	458	99	222	236	1.97
Oklahoma--------:	13	11	586	10,705	3.7	392	83	47	67	42	150	477	119	209	268	1.96
Pennsylvania----:	1,093	11	30,020	11,095	3.9	428	--	41	85	40	157	498	130	260	238	2.35
South Dakota----:	33	12	953	10,007	3.5	353	80	36	73	43	141	351	78	138	213	1.38
Total or average:	3,033	12	80,172	10,987	3.7	411	83	40	80	44	143	427	103	204	223	1.86
Total or av. [2]-:	13,574		385,493	10,885	3.7	404										

[1] Cow-year basis, based on complete individual herd reports only.
[2] Based on all data reported in Table 9.

TABLE 11.--Summary of 1963-64 Owner-Sampler DHIA yearly herd averages, stratified by butterfat pounds [1/]

Grouping	Herds	Body weight	Cow-years	Milk	Fat	Fat	Days in milk	Concentrates fed	Succ. forage fed	Dry forage fed	Days on pasture	Value of product	Cost of concentrates	Feed cost	Income over feed cost	Feed cost per cwt. milk
Lb.	No.	Cwt.	No.	Lb.	Pct.	Lb.	Pct.	Cwt.	Cwt.	Cwt.	No.	$	$	$	$	$
175-224	8	11	27.3	5,665	3.7	210	71	21	48	45	195	212	50	130	82	2.30
225-274	43	11	26.9	6,954	3.7	259	78	26	54	42	164	245	61	133	112	1.92
275-324	217	11	26.6	8,101	3.8	304	80	31	60	45	153	297	75	158	139	1.98
325-374	602	11	25.8	9,440	3.7	352	82	35	67	45	147	345	84	171	174	1.83
375-424	895	12	26.6	10,687	3.7	400	84	39	72	45	145	402	96	192	210	1.81
425-474	789	12	26.2	11,942	3.8	448	85	44	75	45	148	463	114	219	244	1.85
475-524	357	12	27.3	13,076	3.8	495	86	48	85	43	149	531	128	245	286	1.89
525-574	102	12	26.1	14,106	3.8	542	86	52	79	46	144	589	149	275	314	1.96
575-624	16	12	29.3	15,080	3.9	590	88	52	105	44	109	650	146	279	371	1.85
625-674	3	13	14.7	16,850	3.8	637	87	54	44	67	165	622	127	250	372	1.50
675-724	1	12	26.6	18,322	3.9	718	--	59	122	65	151	805	227	400	405	2.18
Total or average	3,033	12	26.4	10,943	3.8	411	83	40	72	45	147	419	102	201	218	1.86

[1/] All groupings and the total or average line are on a herd basis.

TABLE 12.--Summary of 1963-64 Owner-Sampler DHIA yearly herd averages, stratified by cwt. concentrates fed [1/]

Grouping	Herds	Body weight	Cow-years	Milk	Fat	Fat	Days in milk	Concentrates fed	Succ. forage fed	Dry forage fed	Days on pasture	Value of product	Cost of concentrates	Feed cost	Income over feed cost	Feed cost per cwt. milk
Cwt.	No.	Cwt.	No.	Lb.	Pct.	Lb.	Pct.	Cwt.	Cwt.	Cwt.	No.	$	$	$	$	$
No Rept.	1	11	21.6	9,102	3.8	344	81	--	81	62	153	302	---	80	222	.88
Under 5	1	11	33.4	5,558	4.0	224	--	4	142	6	238	280	14	115	165	2.07
05-14	9	12	22.6	7,707	3.6	278	78	12	63	54	127	245	24	97	148	1.29
15-24	128	11	27.0	8,387	3.9	325	82	21	69	46	148	314	51	136	178	1.69
25-34	761	11	26.9	9,757	3.8	373	83	30	70	44	153	369	76	169	200	1.76
35-44	1,127	12	26.9	10,991	3.8	413	84	39	75	44	148	423	99	199	224	1.84
45-54	737	12	25.7	11,937	3.7	444	84	49	73	46	143	460	125	230	230	1.94
55-64	218	12	24.9	12,588	3.7	464	84	58	71	47	136	487	149	256	231	2.05
65-74	42	12	25.5	13,301	3.7	489	84	68	68	43	135	523	173	275	248	2.10
75-84	9	12	27.9	13,248	3.5	469	86	77	42	49	140	464	167	246	218	1.86
Total or average	3,033	12	26.4	10,943	3.8	411	83	40	72	45	147	419	102	201	218	1.86

[1/] All groupings and the total or average line are on a herd basis.

TABLE 13.--Summary of 1963-64 Owner-Sampler DHIA yearly herd averages, stratified by feed cost per cwt. milk [1/]

Grouping	Herds	Body weight	Cow-years	Milk	Fat	Fat	Days in milk	Concentrates fed	Succ. forage fed	Dry forage fed	Days on pasture	Value of product	Cost of concentrates	Feed cost	Income over feed cost	Feed cost per cwt. milk
Cents	No.	Cwt.	No.	Lb.	Pct.	Lb.	Pct.	Cwt.	Cwt.	Cwt.	No.	$	$	$	$	$
Under 175	1,502	12	25.4	11,084	3.7	405	84	39	67	47	143	375	81	156	219	1.41
175-224	816	12	27.8	11,102	3.8	423	83	42	77	43	148	455	113	221	234	1.99
225-274	500	11	26.9	10,795	3.9	418	83	43	80	42	157	478	132	265	213	2.46
275-324	186	11	27.1	9,878	4.0	393	83	43	78	47	152	463	142	290	173	2.94
325-374	23	11	30.2	8,897	4.0	359	84	41	88	47	129	429	139	304	125	3.41
375-424	6	11	33.2	6,975	4.2	294	--	38	72	57	145	342	119	270	72	3.88
Total or average	3,033	12	26.4	10,943	3.8	411	83	40	72	45	147	419	102	201	218	1.86

[1/] All groupings and the total or average line are on a herd basis.

TABLE 14.--Summary of 1963-64 Owner-Sampler DHIA yearly herd averages by breed, stratified by milk pounds 1/

Grouping Lb.	Herds No.	Body weight Cwt.	Cow-years No.	Milk Lb.	Fat Pct.	Fat Lb.	Days in milk Pct.	Concentrates fed Cwt.	Succ. forage fed Cwt.	Dry forage fed Cwt.	Days on pasture No.	Value of product $	Cost of concentrates $	Feed cost $	Income over feed cost $	Feed cost per cwt. milk $
AYRSHIRE																
Under 6,500	2	11	34.3	5,865	3.8	224	--	21	53	34	154	245	66	154	91	2.67
6,500- 7,499	3	11	25.5	7,153	4.0	284	73	38	45	36	184	271	104	191	80	2.66
7,500- 8,499	5	11	17.0	8,209	3.9	322	81	35	45	44	193	270	70	130	140	1.58
8,500- 9,499	7	11	22.0	9,107	4.2	380	83	34	89	37	156	385	93	205	180	2.25
9,500-10,499	1	10	12.7	9,504	4.1	385	75	42	45	7	365	272	117	176	96	1.85
10,500-11,499	5	11	32.4	10,903	3.9	429	84	47	51	42	159	451	120	214	237	1.97
11,500-Up	2	12	29.7	13,222	3.8	501	87	46	70	75	31	559	96	252	307	1.92
Total or average	25	11	24.7	9,138	4.0	364	82	38	61	41	166	360	94	188	172	2.10
GUERNSEY																
Under 6,500	10	10	21.7	6,061	4.7	283	80	26	25	47	183	249	61	141	108	2.33
6,500- 7,499	30	10	23.2	7,088	4.7	332	84	29	46	40	144	317	75	152	165	2.14
7,500- 8,499	50	10	24.0	8,042	4.7	379	85	33	37	41	170	337	78	148	189	1.84
8,500- 9,499	43	10	25.2	8,918	4.6	412	85	36	61	37	163	412	91	182	230	2.04
9,500-10,499	20	11	25.4	9,878	4.5	442	85	41	57	40	168	431	103	188	243	1.90
10,500-11,499	13	11	25.9	10,847	4.3	467	84	40	66	43	162	473	103	217	256	2.00
11,500-Up	3	11	26.2	12,511	3.8	470	85	44	81	48	156	578	123	254	324	2.04
Total or average	169	10	24.4	8,491	4.6	389	84	34	49	40	162	373	86	169	204	2.00
HOLSTEIN																
Under 6,500	7	10	27.9	5,743	3.9	221	78	23	32	46	200	208	51	119	89	2.07
6,500- 7,499	24	11	21.1	7,168	3.7	268	78	26	47	46	168	238	54	121	117	1.69
7,500- 8,499	69	11	29.1	8,102	3.6	293	79	30	69	46	144	284	68	147	137	1.82
8,500- 9,499	170	12	26.6	9,091	3.7	332	81	32	69	47	147	317	72	153	164	1.68
9,500-10,499	340	12	25.6	10,026	3.6	364	82	37	70	48	141	348	83	168	180	1.68
10,500-11,499	474	12	27.5	11,005	3.6	400	83	39	79	47	134	395	91	184	211	1.67
11,500-12,499	477	12	26.3	11,989	3.6	436	85	43	78	46	141	437	105	203	234	1.69
12,500-13,499	325	12	26.7	12,933	3.6	468	85	47	78	47	143	479	115	221	258	1.71
13,500-14,499	131	12	27.9	13,879	3.6	504	85	49	79	45	147	529	125	234	295	1.69
14,500-15,499	45	12	25.3	14,916	3.6	541	86	52	71	53	131	560	132	248	312	1.67
15,500-16,499	10	13	27.7	15,755	3.6	570	86	60	81	48	130	575	135	255	320	1.62
16,500-Up	2	13	20.6	18,689	3.7	686	89	57	87	66	151	696	172	301	396	1.62
Total or average	2,074	12	26.7	11,354	3.6	413	83	41	75	47	141	411	97	192	219	1.69
JERSEY																
4,500- 5,499	5	9	28.7	5,176	5.1	263	80	24	37	39	134	245	60	122	123	2.35
5,500- 6,499	8	10	23.5	6,020	5.2	311	84	26	64	35	139	284	67	134	150	2.23
6,500- 7,499	23	10	25.1	7,021	5.1	361	84	31	42	36	156	326	74	146	180	2.09
7,500- 8,499	22	9	27.4	8,005	5.0	399	86	34	46	36	157	385	91	180	205	2.25
8,500- 9,499	6	9	21.1	8,991	5.1	456	84	40	35	42	188	412	103	197	215	2.19
9,500-10,499	6	9	21.7	9,885	4.9	480	88	43	73	30	143	447	99	184	263	1.86
10,500-Up	2	13	15.6	11,507	4.6	526	88	50	37	48	164	394	118	230	164	2.00
Total or average	72	9	25.0	7,610	5.0	383	85	33	47	36	155	353	83	163	190	2.16
BROWN SWISS																
Under 7,500	2	11	26.0	6,841	3.9	266	86	31	19	37	192	217	72	121	106	1.76
7,500- 8,499	5	12	18.9	8,094	4.0	323	83	39	48	36	194	286	93	157	129	1.94
8,500- 9,499	15	12	20.3	8,982	4.0	358	81	39	54	51	135	310	85	156	154	1.73
9,500-10,499	12	12	22.3	9,989	4.0	398	84	42	43	52	159	360	92	172	188	1.72
10,500-11,499	14	13	20.3	10,945	4.0	435	84	44	67	50	138	399	106	193	206	1.76
11,500-12,499	4	13	21.9	11,839	3.9	457	87	37	95	47	136	440	87	186	254	1.57
12,500-Up	2	12	23.8	13,398	4.2	563	85	59	42	41	163	598	131	215	384	1.62
Total or average	54	12	21.1	9,928	4.0	395	83	41	56	48	150	359	94	172	187	1.74
MIXED BREEDS																
5,500- 6,499	4	11	24.0	6,032	4.2	256	--	19	94	36	170	303	56	171	132	2.81
6,500- 7,499	22	11	20.8	7,031	4.3	301	83	31	56	40	162	310	95	194	116	2.77
7,500- 8,499	43	11	24.5	8,145	4.1	334	83	32	56	39	178	359	97	204	155	2.51
8,500- 9,499	84	11	26.9	8,981	4.0	356	84	35	69	39	164	391	105	220	171	2.45
9,500-10,499	127	11	27.2	9,988	3.9	391	85	38	74	40	159	444	113	232	212	2.32
10,500-11,499	120	11	27.4	10,981	3.8	422	84	42	71	43	162	488	131	258	230	2.35
11,500-12,499	116	11	28.2	11,996	3.8	456	85	45	84	40	162	529	139	271	258	2.26
12,500-13,499	70	11	26.6	12,943	3.8	491	85	47	88	43	150	576	146	280	296	2.17
13,500-14,499	36	11	30.3	13,918	3.8	522	86	51	74	45	158	592	152	276	316	1.98
14,500-15,499	10	11	25.6	14,809	3.8	565	86	54	96	41	147	646	174	326	320	2.20
15,500-Up	3	11	13.8	16,044	3.7	598	86	53	25	62	163	538	143	259	279	1.60
Total or average	635	11	27.0	10,810	3.9	418	84	41	74	41	161	476	125	248	228	2.32

1/ All groupings and the total or average line are on a herd basis.

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Dairy-Herd-Improvement Letter
ARS-44-155
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January-February 1965

1,437,959 LACTATION RECORDS REPORTED IN 1964

The number of lactation records reported to the USDA for genetic appraisal and research reached an alltime high of 1,437,959 in 1964, 117,536 more than in 1963. Of these, 49.7 percent were reported on magnetic tape, 42.7 percent on punched USDA 1095 cards, and 7.6 percent on hand-recorded USDA 718 cards. Further details of lactation records as reported by individual States in 1964 are shown in Table 1.

Both the number of lactation records reported and the percentage of cows represented have increased steadily during the last 15 years. Since 1950, the number of cows enrolled in DHIA has increased nearly 100 percent, while the number of lactation records reported to the USDA has increased 205 percent. As a result, the percent of cows on test having reported records has increased from 43 to 72 percent since 1950. This more complete reporting is attributed largely to the continued development of central processing of DHIA records. A summary of the records reported since 1950 is shown below:

Year	DHIA cows enrolled	Lactation records reported to USDA	Pct. of DHIA cows represented by records reported
	(Number)	(Number)	(Percent)
1950	1,088,872	471,721	43
1955	1,333,866	636,293	48
1960	1,746,752	886,495	51
1963	2,006,534	1,320,423	66
1964	2,010,144	1,437,959	72

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CONTINUED DECREASE IN HAND-REPORTING OF LACTATION RECORDS

In 1964 only 109,182 (7.6 percent) hand-recorded lactation records were reported to the USDA. Corresponding figures for 1963, 1962, and 1961 were 138,441 (10.5 percent), 175,404 (14.5 percent), 233,468 (21.5 percent),respectively. This encouraging trend is a direct result of expanded central processing of DHIA records.

The benefits to be derived from centrally processed DHIA herd books and records have been thoroughly demonstrated during the last 10 years. It is hoped that dairymen who have not converted to the improved system will do so soon. To encourage this, the Dairy Records Committee of the American Dairy Science Association made the following recommendation in June 1964:

"The committee recommends that all DHIA records be converted to the central processing system as soon as possible. To encourage this movement, the committee recommends that July 1, 1965, be set as the target date to have all DHIA records on this system of calculation. It is recommended that no more DHIA forms for hand calculation be printed by USDA."

DHIA members who are not enrolled in central processing should be encouraged to aim at the July 1, 1965, target date for conversion. Meanwhile, the supply of DHIA forms that USDA has been providing routinely for hand-recorded records and herd books is sufficient to last, at current rates of usage, until approximately January 1, 1966.

20,563 SUMMARIES OF SIRES IN 1964

In the four quarterly sire evaluations in 1964, 20,563 summaries were made of sires in DHIA. (Individual sire records sent to the States are given by breeds in Table 2.) Seventy-five percent of the sire summaries represented non-artificially inseminated (AI) bulls averaging 13.5 daughter herdmate pairs per evaluation and a total of 203,568 daughter-records. The remaining 25 percent included AI sire summaries and 1,204,983 daughter-records averaging 238 daughter herdmate pairs per summary.

During 1964, a total of 63,806 copies of individual sire records were made available to the cooperating States.

11,385 DHIA COWS INDEXED IN 1964

A total of 11,385 DHIA cows representing the top 2 percent of registered progeny of bulls summarized in 1964, were indexed in the two evaluations performed.

112,161 LACTATION RECORDS REJECTED BY USDA IN 1964

Data processing and clerical editing procedures in 1964 resulted in the rejection of 112,161 lactation records from current and master files. These rejected records, which reflected 7.8 percent of the 1,437,959 records reported in 1964, were returned to the respective cooperating States for verification. In more than 92 percent of the rejected records, the source of discrepancy can be traced to inconsistencies in identification number (cow, sire, and dam), birth date, or calving date. These conflicts can be largely eliminated by the following:

1. Correct initial identification and reporting of the proper eartag or registration number of cow, sire, and dam.
2. Correct and consistent reporting of identification in later records of cows.
3. Correct and consistent reporting of birth dates.
4. Correct reporting of calving dates.

The frequency of DHIA lactation records rejected by the USDA in 1964 is shown by error code in Table 3.

CONSEQUENCES OF VARYING HERD LEVELS AND AREA OR REGIONAL EFFECTS ON ESTIMATES OF BREEDING VALUE OF SIRES IN AI

USDA sire summaries of AI bulls are adjusted for the following sources of variation:

1. Herd effects and time trends, by pairing only those records of daughters and herdmates within herds, years, and seasons.
2. Number of herdmates.
3. Number of daughters.
4. Genetic opportunity (level of herdmates).

Of these, the one least understood and most difficult to explain is the adjustment for level of herdmates. In general terms, this step in the USDA sire summary of AI bulls may be regarded as an adjustment for differences in opportunity or herd level of production that may exist between progeny groups. More specifically, it may be considered as an adjustment for that part of the production of a sire's daughters that is attributed to the superiority or inferiority of their herdmates as compared to breed average.

Questions frequently raised concerning the same problem area are (1) will USDA sire summaries of AI bulls provide reliable estimates of breeding values, not just within areas and levels of herd production but throughout the United States as well, and (2) is the level of production of a summarized AI sire's daughters or herdmates, per se, a factor limiting the reliability and usefulness of his predicted average, especially if he is to be used in high producing herds? Before attempting to answer these questions, a brief explanation of the concepts underlying the adjustment for level of herdmates in USDA summaries is presented.

Research results, while somewhat variable, suggest that from 80 to 90 percent of the difference in production between herds is of nongenetic (environmental) origin. Thus, only 10 to 20 percent of the production difference between herds, or from herd to herd in herdmate averages, is assumed to be genetically determined. Assuming that (1) the genetic difference between herds or between sire-herdmate groups from herd to herd is 20 percent, (2) sires' mates and the herdmates of their daughters are genetically similar (within sire-herd groups), and (3) a sire and dam contribute equally to the genetic complex of their progeny, it follows that a sire should be credited for 10 percent of the deviation of herdmates from breed average. Therefore, the adjustment for herdmate level in USDA summaries of AI sires can be expressed as

$$\text{ADA} = \text{DA} - 0.9\ (\text{AHMA} - \text{BA})$$

where ADA = adjusted daughter average, DA = daughter average, AHMA = adjusted herdmate average, and BA = breed average.

Henderson *et al* (2)[1] and Van Vleck (7), using DHIA data from New York, and Fairchild *et al* (1), using DHIA data from Wisconsin, found the regression of daughters of AI bulls on herdmates to be approximately 0.9. This means that 90 percent of the difference in production between a group of herdmates and the breed average is reflected in the performance of sire's daughters. Thus for each 1,000 pounds of milk increase in herdmates, daughters of a bull may be expected to increase by approximately 900 pounds of milk.

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[1] Underscored numbers in parentheses refer to References, page 7.

The method by which USDA sire summaries are adjusted for variations in herd levels of production (herdmate averages) can be simply illustrated after assuming, for example, that two sires have been extensively tested, each with equal numbers of daughters and herdmates and with identical breed-season effects. In the example of sires A and B shown below, breed average (BA) = 12,000 pounds of milk, ADA = adjusted daughter average, AHMA = adjusted herdmate average, and PA = predicted average:

Sire	DA	AHMA	DA-AHMA	ADA 1/	PA	PA-BA
A	13,000	12,000	+1,000	13,000	13,000	+1,000
B	14,000	13,000	+1,000	13,100	13,100	+1,100

1/ ADA = DA - 0.9 (AHMA - BA).

This adjustment of the daughter averages provides in the predicted average an estimate of what the progeny of each bull can be expected to average as a group in breed average herds. In the case of sire A, no adjustment is made or needed since AHMA = BA = 12,000 pounds of milk. However, 100 pounds of milk increase is credited to the predicted average of sire B. It then can be assumed that when these bulls are used at random in the population, the daughters of sire B will average 100 pounds of milk more than those of sire A. This procedure takes into consideration variation in the level of herdmate averages (herd levels) among sires and makes it possible to estimate the breeding value of bulls at all levels of herd production.

Research results indicate that there is no important genetic-environment or sire-herd interaction associated with the use of bulls in AI. Van Vleck (6) reports little, if any, genetic-environmental interaction (changes in the ranking of sires in different environments) and that sires can be evaluated in all levels of herds and with similar rank at all levels of daughters. Similar results were reported by Robertson *et al.* (5). Van Vleck (7) reports further that the common linear regression of 0.88 (0.9 used by USDA) is suitable for adjusting daughter averages for herdmate levels except when herdmates are far above or below breed average. Lytton and Legates (4) found that Holstein AI bulls ranked almost identically in Northern and Southern regions even though area differences in milk yield amounted to 2,000 to 3,000 pounds. From these and related research findings, it appears that herd levels of production and other area or regional differences are not important considerations in the reliability of USDA summaries of well-sampled AI sires.

The question remains as to the reliability of USDA summaries of specific AI bulls in predicting their performances in individual herds producing at high levels. Dairymen frequently ask "Should I use a +1,000-pound AI bull in my 16,000-pound herd if his daughters have averaged only 13,000 pounds of milk in 12,000-pound herds?" This question is answered by the apparent fact that there are no important sire-herd level interactions. Daughters of superior AI bulls will tend to be good performers regardless of the herd level in which they are used. The regression (0.9) principle previously cited, however, is again involved. The expected daughter average in an individual herd is equal to the predicted average plus 0.9 of the difference between the herd average and the breed average. For example,in a 16,000-pound herd an AI bull having a predicted average of 13,000 pounds of milk (1,000 over breed average) may be expected to sire daughters averaging 16,600 pounds of milk.

Extreme caution, however, should be exercised in attempting to predict with expected accuracy the performance of a bull in a single herd. Both environment and genetic sampling contribute heavily to variation in the performance of related individuals. Fortunately, such a practice is unnecessary. Instead, dairymen should be encouraged to use the best bulls available and to realize that thoroughly sampled bulls will tend to rank similarly, regardless of the kind of environment from which they were tested or in which they will be used. Under these conditions and in view of present research findings, herd or environment levels and region or area differences appear to be relatively unimportant and it becomes unnecessary to attempt to predict the specific level of transmitting ability of a bull in an individual herd.

It should be noted that additional research is needed to test certain assumptions that are made in the computation and use of the relatively new herdmate comparison. The regression value of 0.9 should be tested for accuracy, not only for herd levels of environment but also by area, region, and breed and for both milk and fat yield. Research is also needed to determine if genetic differences exist among herdmate groups from one AI sire to another and to further test the assumption that no genetic difference exists between mates of sires and the herdmates of their daughters.

It should also be noted that USDA herdmate comparisons are not completely effective in adjusting for year-to-year and region-to-region differences that may exist in breed-season averages. This results from the use by USDA of a 5-year U.S.

breed-season average in the adjustment for herdmates. This procedure will be changed at the earliest possible date, at which time the appropriate breed-region-year-season average will be used in the adjustment for herdmates.

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TABLE 1.--Production records reported to the USDA for quarterly evaluations in 1964 1/

State	DHIA cows on test 1-1-64	1964 production records					1963 production records	
		Hand recorded (718 cards)	Punched (1095 cards) 2/	Magnetic tape	Total			
	Number	Number	Number	Number	Number	Percent 3/	Number	Percent 3/
Ala--------	22,522	10	22,088	-	22,098	98.1	19,599	89.4
Alaska-----	521	-	132	-	132	25.3	90	20.9
Ariz-------	20,355	-	3,878	-	3,878	19.1	3,685	17.7
Ark--------	3,605	-	111	3,715	3,826	106.1	3,436	95.9
Calif------	318,168	6,062	10,986	-	17,048	5.4	6,661	2.0
Colo-------	12,973	-	5,803	-	5,803	44.7	5,494	45.9
Conn-------	22,493	900	200	13,688	14,788	65.7	15,954	68.2
Del--------	3,703	-	84	4,559	4,643	125.4	5,345	122.3
Fla--------	18,726	1,140	14,408	-	15,548	83.0	8,518	44.3
Ga---------	26,786	1,189	17,470	-	18,659	69.7	16,090	63.2
Hawaii-----	3,089	10	121	31	162	5.2	14	1.1
Idaho------	28,713	3,819	6,686	-	10,505	36.6	6,687	25.5
Ill--------	63,952	5,310	56,230	-	61,540	96.2	49,070	78.6
Ind--------	40,297	-	46,136	-	46,136	114.5	28,213	73.8
Iowa-------	57,438	1,044	98	58,312	59,454	103.5	48,656	83.9
Kans-------	33,098	3,575	33	25,845	29,453	89.0	23,333	80.0
Ky---------	22,000	3,207	13,231	-	16,438	74.7	13,489	64.2
La---------	5,268	451	3,444	-	3,895	73.9	3,450	66.2
Maine------	19,322	1,221	12	17,167	18,400	95.2	22,310	103.2
Md---------	45,373	6,220	140	35,729	42,089	92.8	41,166	85.3
Mass-------	22,256	586	297	21,583	22,466	100.9	24,946	107.8
Mich-------	86,263	-	82,537	-	82,537	95.7	42,301	53.7
Minn-------	125,954	20,512	45,500	28,038	94,050	74.7	76,614	61.2
Miss-------	11,334	469	8,276	-	8,745	77.2	6,545	63.8
Mo---------	24,321	5,386	292	7,312	12,990	53.4	10,124	37.2
Mont-------	4,055	1,113	398	-	1,511	37.3	1,152	28.4
Nebr-------	13,265	199	153	11,781	12,133	91.5	9,605	69.9
Nev--------	3,849	-	1,968	-	1,968	51.1	1,770	43.8
N. H-------	12,927	7	43	13,901	13,951	107.9	14,909	134.3
N. J-------	29,992	5,253	776	12,775	18,804	62.7	19,110	64.8
N. Mex-----	5,354	-	2,025	-	2,025	37.8	1,263	28.8
N. Y-------	167,490	-	130	179,635	179,765	107.3	198,294	116.6
N. C-------	42,913	-	46,747	-	46,747	108.9	43,280	101.0
N. Dak-----	6,612	343	-	5,970	6,313	95.5	5,475	91.0
Ohio-------	80,600	2,954	72,701	-	75,655	93.9	44,738	55.6
Okla-------	10,589	12	14	9,107	9,133	86.2	6,669	72.1
Oreg-------	27,215	7,275	12,301	-	19,576	71.9	18,133	64.5
Pa---------	172,807	-	751	4/102,008	4/102,759	4/59.5	150,779	87.4
P. R-------	4,688	-	-	-	-	-	2,460	47.1
R. I-------	2,518	394	69	6,297	6,760	268.5	7,021	286.7
S. C-------	19,858	-	21,634	-	21,634	108.9	19,415	99.3
S. Dak-----	6,876	462	-	6,647	7,109	103.4	3,780	48.7
Tenn-------	25,510	-	14,947	-	14,947	58.6	11,893	48.8
Tex--------	27,782	630	19,542	-	20,172	72.6	19,463	69.5
Utah-------	18,237	-	16,428	-	16,428	90.1	16,045	87.0
Vt---------	47,298	7,219	229	26,342	33,790	71.4	34,432	69.3
Va---------	61,402	8,789	48,337	-	57,126	93.0	59,926	91.7
Wash-------	50,766	11,061	14,531	-	25,592	50.4	26,158	52.8
W. Va------	9,720	2,360	-	3,455	5,815	59.8	5,384	74.7
Wis--------	117,995	-	1,102	121,431	122,533	103.8	117,066	102.3
Wyo--------	1,296	-	430	-	430	33.2	413	33.9
U. S-------	2,010,144	109,182	613,449	715,328	1,437,959	71.5	1,320,423	65.8

1/ Includes only records reported in time for use in the quarterly sire evaluations in 1964.

2/ Includes lactation records from breed associations.

3/ Records are expressed as percent of cows enrolled in DHIA. Percentages vary by State and may exceed 100 percent depending upon reporting and processing procedures in December and January of each year.

4/ Does not include lactation records on 2 reels of tape received in November but after the beginning of the final production-run in 1964.

TABLE 2.--Number of sire records summarized in 1964, by States, by breed

State	Ayrshire	Guernsey	Holstein	Jersey	Brown Swiss	Shorthorn	Red Dane	Other	Red Poll	Total
	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number
Maine----------------	66	153	542	125	33	10	-	-	-	929
New Hampshire--------	115	141	630	138	40	11	-	-	-	1,075
Vermont--------------	130	225	1,128	383	95	8	-	-	-	1,969
Massachusetts--------	131	257	983	212	87	1	-	-	-	1,671
Rhode Island---------	45	55	342	50	2	-	-	-	-	494
Connecticut----------	110	353	947	161	77	-	-	-	-	1,648
New York-------------	234	515	3,176	448	161	13	4	3	-	4,554
New Jersey-----------	26	329	1,008	142	96	-	-	-	-	1,601
Pennsylvania---------	189	925	2,417	329	141	24	-	-	-	4,025
Ohio-----------------	79	409	1,305	413	159	14	-	-	-	2,379
Indiana--------------	43	375	960	227	133	19	-	1	-	1,758
Illinois-------------	88	477	1,479	235	203	29	-	-	2	2,513
Michigan-------------	44	295	1,706	227	126	18	9	-	-	2,425
Wisconsin------------	65	565	2,505	221	246	50	-	-	-	3,652
Minnesota------------	127	347	1,614	180	181	54	-	-	-	2,503
Iowa-----------------	109	320	1,551	272	246	75	-	-	1	2,574
Missouri-------------	1	219	694	170	41	25	-	-	-	1,150
North Dakota---------	4	51	346	15	51	8	-	-	1	476
South Dakota---------	37	35	469	36	57	-	-	-	1	635
Nebraska-------------	12	152	637	52	92	22	-	-	-	967
Kansas---------------	73	187	855	113	100	27	-	-	-	1,355
Delaware-------------	29	92	440	35	28	-	-	-	-	624
Maryland-------------	104	393	1,443	127	134	9	-	-	-	2,210
Virginia-------------	82	405	1,345	152	75	6	-	-	-	2,065
West Virginia--------	49	96	573	96	8	-	-	-	-	822
North Carolina-------	59	310	950	236	76	1	-	-	-	1,632
South Carolina-------	14	322	561	191	66	2	-	-	-	1,156
Georgia--------------	46	154	635	142	70	-	-	-	-	1,047
Florida--------------	26	307	309	186	40	-	-	-	-	868
Kentucky-------------	11	120	656	180	40	-	-	-	-	1,007
Tennessee------------	20	271	474	313	60	16	-	-	-	1,154
Alabama--------------	23	187	381	194	29	5	-	-	-	819
Mississippi----------	44	168	172	225	29	-	-	-	-	638
Arkansas-------------	7	71	216	60	7	17	-	-	-	378
Louisiana------------	-	184	173	103	16	-	-	-	-	476
Oklahoma-------------	37	107	413	100	34	37	-	-	-	728
Texas----------------	47	126	690	255	88	-	-	-	-	1,206
Montana--------------	5	38	129	19	30	-	-	-	-	221
Idaho----------------	10	170	483	155	37	14	-	-	-	869
Wyoming--------------	-	5	85	-	-	-	-	-	-	90
Colorado-------------	20	134	491	77	82	5	-	-	-	809
New Mexico-----------	-	94	170	37	-	-	-	-	-	301
Arizona--------------	1	122	302	35	15	-	-	-	-	475
Utah-----------------	11	109	549	80	11	-	-	-	-	760
Nevada---------------	-	14	36	70	1	-	-	-	-	121
Washington-----------	41	269	619	179	39	11	-	-	-	1,158
Oregon---------------	17	231	397	281	48	14	-	-	-	988
California-----------	6	173	453	112	10	-	-	-	-	754
Puerto Rico----------	-	-	40	-	-	-	-	-	-	40
Hawaii---------------	-	-	8	-	-	-	-	-	-	8
Alaska---------------	-	-	8	-	20	-	1	-	-	29
Total individual sire records sent to States-										63,806
Total sires summarized-----	713	3,819	12,162	2,746	863	244	10	4	2	20,563

TABLE 3.--Relative frequency of DHIA lactation record rejects in 1964

Reject code	Type of reject	Percent of all records	Percent of all rejects
D	Birth date	1.7	21.2
F	Possible twin	1.6	20.4
A	Sire number, registered	.9	12.1
Q	Calving date	.9	11.6
B	Dam number, registered	.9	10.9
H	Identification of parents	.7	9.1
M	Eartag identification	.7	8.4
R	Unusual percent test	.1	1.6
I	Cow number, registered	.1	1.3
E	Breed	.1	.9
P	Production, blank and/or alpha	.1	.7
T	Production	(1/)	.5
J	Same identification number, cow, sire, and/or dam	(1/)	.4
W	Identification conflict with Breed Associations	(1/)	.4
V	Days in milk, 3X exceeds 2X	(1/)	.2
C	Cow, sire and/or dam registration number, blank or alphabetic	(1/)	.1
G	Herd code number	(1/)	.1
Y	(USDA use only)	0	.1
O	Conflicting verified corrections, identification	0	0
S	Conflicting verified corrections, production	0	0
	Total	7.8	100.0

1/ Less than 0.05 percent.

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RECORD BOOK
A plan for every size herd
STANDARD DHIA OWNER SAMPLER WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter
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DHIA PARTICIPATION REPORT
January 1, 1965

The National Cooperative Dairy Herd Improvement Program, which is a composite of the Standard (including DHIR), Owner-Sampler, and Weigh-a-Day-a-Month recordkeeping plans, included 67,908 herds and 2,962,557 cows on test January 1, 1965. This represents 18.4 percent of the nation's dairy cow population and an increase of 140,035 cows during the last year. Each of the 50 States and Puerto Rico are represented in the total program that includes 1,424 associations and 2,439 supervisors. The participation reports for the combined program, the Standard, Owner-Sampler, and Weigh-a-Day-a-Month plans are shown in tables 1, 3, 4, and 5, respectively.

The steady growth of Standard DHIA is shown in table 2. During the last year, 595 fewer herds, but 77,437 more cows, were included; herds averaged 52.1 cows per herd. There has been a slight but steady decline in percentage of fat test since 1950, averaging 0.014 percent per year. These averages and rates of decline are in close agreement with those estimated for all U.S. dairy cows.

The Owner-Sampler plan includes 818,406 cows, in 26,604 herds averaging 30.8 cows per herd. Wisconsin has 44.1 percent of the Owner-Sampler enrollment. The Weigh-a-Day-a-Month plan includes 56,570 cows in 1,229 herds, an average of 46.0 cows per herd.

Central processing by State and Regional DHIA Centers continues to advance. Central processing of Standard plan records (including DHIR) has reached 100 percent in 19 States, and in all States averages 83.6 percent of the herds and 74.5 percent of the cows. The corresponding values for the combined plans are 75.2 and 71.3 percent.

A 10-year summary of DHIA and all U.S. dairy cows is shown in table 7. Since 1955, the nation's dairy herd has been decreasing 553,000 cows annually, while participation in the total recordkeeping program has increased by 131,000 cows annually. The net result has been an increase in percent of U.S. dairy cows participating in the total DHIA program from 8.5 in 1955 to 18.4 in 1964.

A list of 463 counties having 25 percent or more of their dairy cows on one or more of the recordkeeping plans is shown in table 8.

Issued April 1965

TABLE 1.--The National Cooperative Dairy Herd Improvement Program
(January 1, 1965)

State	Counties	Asso-ciations	Super-visors	Standard		Owner-Sampler		Weigh-a-Day a-Month		Total		Milk cows in U. S.	
				Herds	Cows	Herds	Cows	Herds	Cows	Herds	Cows	Total 1/	In all plans 2
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	Thousands	Pct.
Ala------	53	22	21	306	26,510	15	970	29	2,187	350	29,667	205	14.5
Alaska---	2	2	2	9	385	-	-	-	-	9	385	3	12.8
Ariz-----	7	4	14	123	20,206	25	5,628	-	-	148	25,834	52	49.7
Ark------	20	14	13	67	3,149	30	1,281	-	-	97	4,430	175	2.5
Calif----	43	30	126	1,962	350,987	211	14,854	-	-	2,173	365,841	790	46.3
Colo-----	18	14	22	213	14,414	22	1,028	-	-	235	15,442	108	14.3
Conn-----	8	8	24	418	22,687	75	3,044	-	-	493	25,731	74	34.8
Del------	3	3	5	94	4,234	14	391	3	56	111	4,681	23	20.4
Fla------	29	10	11	102	18,086	4	617	20	5,634	126	24,337	178	13.7
Ga-------	103	34	35	403	28,493	1	100	35	2,450	439	31,043	181	17.2
Hawaii---	2	1	1	11	1,970	1	250	4	191	16	2,411	14	17.2
Idaho----	36	40	40	639	27,077	15	321	-	-	654	27,398	185	14.8
Ill------	81	56	89	1,589	64,256	429	13,473	253	7,170	2,271	84,899	478	17.8
Ind------	84	59	82	1,156	43,381	352	10,492	-	-	1,508	53,873	386	14.0
Iowa-----	97	74	98	1,764	61,732	1,605	38,476	-	-	3,369	100,208	780	12.8
Kans-----	105	52	61	751	31,643	95	2,932	10	300	856	34,875	285	12.2
Ky-------	3/66	40	49	523	20,920	35	900	73	2,171	631	23,991	455	5.3
La-------	34	21	15	64	4,882	13	882	157	9,485	234	15,249	211	7.2
Maine----	15	15	32	477	19,958	118	4,050	5	120	600	24,128	87	27.7
Md-------	17	17	36	796	43,959	82	3,312	-	-	878	47,271	207	22.8
Mass-----	11	10	26	493	22,168	84	2,557	-	-	577	24,725	83	29.8
Mich-----	3/73	80	127	2,153	90,722	1,920	59,627	-	-	4,073	150,349	620	24.2
Minn-----	85	87	210	3,809	126,440	2,133	55,711	-	-	5,942	182,151	1,265	14.4
Miss-----	43	16	19	217	13,402	3	198	75	2,500	295	16,100	284	5.7
Mo-------	83	48	44	575	25,130	62	2,317	101	3,175	738	30,622	573	5.3
Mont-----	14	7	9	71	3,946	16	1,064	-	-	87	5,010	68	7.4
Nebr-----	51	29	30	326	14,400	76	2,690	25	750	427	17,840	278	6.4
Nev 4/---	3/5	3	3	46	3,849	6	179	-	-	52	4,028	14	28.8
N. H-----	3/10	9	17	273	11,866	70	2,180	-	-	343	14,046	44	31.9
N. J-----	10	10	24	479	30,124	72	3,399	-	-	551	33,523	112	29.9
N. Mex---	8	6	7	30	4,282	5	300	6	1,610	41	6,192	40	15.5
N. Y-----	49	49	200	3,789	173,363	2,845	96,795	-	-	6,634	270,158	1,198	22.6
N. C-----	88	42	55	788	44,283	47	1,691	129	5,719	964	51,693	242	21.4
N. Dak---	27	19	18	162	6,015	47	958	88	1,748	297	8,721	244	3.6
Ohio-----	86	86	158	2,348	89,598	1,454	39,137	5	154	3,807	128,889	599	21.5
Okla-----	57	14	17	191	11,250	20	816	8	350	219	12,416	199	6.2
Oreg 4/--	28	18	27	440	27,215	150	4,600	10	250	600	32,065	137	23.4
Pa-------	67	59	204	4,639	175,423	1,444	39,878	-	-	6,083	215,301	820	26.3
P. R-----	14	1	5	20	4,575	-	-	24	4,520	44	9,095	-	-
R. I-----	5	2	2	44	2,276	4	76	-	-	48	2,352	11	21.4
S. C-----	34	21	21	248	21,350	2	78	23	881	273	22,309	93	24.0
S. Dak---	44	20	12	167	6,742	296	8,264	-	-	463	15,006	233	6.4
Tenn-----	83	42	33	491	26,809	3	126	68	2,006	562	28,941	459	6.3
Tex------	3/84	26	29	334	27,751	10	620	16	1,340	360	29,711	489	6.1
Utah-----	22	15	18	380	19,056	30	1,006	-	-	410	20,062	86	23.3
Vt-------	13	30	59	970	47,721	508	19,624	-	-	1,478	67,345	240	28.1
Va-------	81	61	58	1,034	61,214	76	2,442	2	326	1,112	63,982	292	21.9
Wash-----	31	23	42	928	54,870	233	6,990	-	-	1,161	61,860	216	28.6
W. Va----	30	12	16	121	6,186	9	394	60	1,477	190	8,057	108	7.5
Wis------	69	59	166	3,003	125,446	11,808	360,760	-	-	14,811	486,206	2,115	23.0
Wyo------	6	4	7	39	1,180	29	928	-	-	68	2,108	26	8.1
Total or average	2,134	1,424	2,439	40,075	2,087,581	26,604	818,406	1,229	56,570	67,908	2,962,557	1/16,065	18.4

1/ Preliminary figures for average number of milk cows on farma excluding heifers not yet fresh; estimated by the Statistical Reporting Service.
2/ Percentage of cows included in the National Cooperative Dairy Herd Improvement Program.
3/ Estimated.
4/ Based on last report available (1-1-64).

TABLE 2.--Growth of Dairy Herd Improvement Association work in the United States (1906-1965, inclusive)

Year	Associations 1/	Supervisors 1/	Standard Plan							
			Herds	Cows	Cows per herd	Average production				
						Herds reported	Cows reported	Milk	Fat	Fat
	No.	No.	No.	No.	No.	No.	No.	Lb.	Pct.	Lb.
1906---	1	----	31	239	7.7	------	------	5,300	4.06	215
1907---	4	----	-----	1,606	----	------	------	5,366	4.10	220
1908---	6	----	-----	3,921	----	------	------	-----	----	---
1909---	25	----	-----	11,921	----	------	------	-----	----	---
1910---	40	----	-----	2/25,000	----	------	------	2/5,730	3.96	2/227
1911---	64	----	-----	2/40,000	----	------	------	-----	----	---
1912---	82	----	-----	2/43,000	----	------	------	-----	----	---
1913---	100	----	-----	47,150	----	------	------	-----	----	---
1914---	163	----	-----	73,280	----	------	------	-----	----	---
1915---	211	----	-----	105,526	----	------	------	-----	----	---
1916---	346	----	-----	150,677	----	------	------	-----	----	---
1917---	459	----	11,720	216,831	18.5	------	------	-----	----	---
1918---	353	----	9,778	172,518	17.6	------	------	-----	----	---
1919---	385	----	10,000	167,313	16.7	------	------	-----	----	---
1920---	468	----	11,948	203,472	17.0	------	------	6,175	4.00	247
1921---	452	----	11,209	193,928	17.3	------	------	-----	----	---
1922---	513	----	12,508	215,321	17.2	------	------	-----	----	---
1923---	627	----	16,357	277,010	16.9	------	------	-----	----	---
1924 3/	---	----	------	-------	----	------	------	-----	----	---
1925---	732	----	18,677	307,073	16.4	------	42,302	7,189	3.95	284
1926---	777	----	19,540	327,653	16.8	------	103,443	7,331	3.96	290
1927---	837	----	21,128	362,014	17.1	------	116,509	7,411	3.95	293
1928---	947	----	23,327	414,891	17.8	------	152,412	7,476	3.96	296
1929---	1,090	----	26,182	465,804	17.8	------	194,859	7,498	3.97	298
1930---	1,143	----	27,888	507,549	18.2	------	235,624	7,642	3.96	303
1931---	1,112	----	26,308	510,714	19.4	------	219,924	7,812	3.92	306
1932---	1,005	----	20,351	427,044	21.0	------	186,683	7,858	3.95	310
1933---	881	----	15,447	358,501	23.2	------	163,014	7,849	3.99	313
1934---	793	----	13,694	325,837	23.8	------	203,930	8,015	4.02	322
1935---	809	----	15,573	364,218	23.4	------	200,367	7,977	4.04	322
1936---	876	----	17,344	404,412	23.3	------	257,248	7,912	4.03	319
1937---	992	----	20,772	496,562	23.9	------	354,568	7,923	4.04	320
1938---	1,106	----	23,701	558,993	23.6	------	448,025	7,831	4.05	317
1939---	1,228	----	25,949	625,284	24.1	------	507,563	7,977	4.05	323
1940---	1,300	----	27,948	676,141	24.2	------	545,382	8,133	4.07	331
1941---	1,383	----	31,381	763,502	24.3	------	591,103	8,225	4.07	335
1942---	1,421	----	32,957	816,117	24.8	------	514,758	8,323	4.07	339
1943---	1,057	----	24,155	616,972	25.5	------	375,914	8,325	4.06	338
1944---	954	----	20,825	561,587	27.0	------	383,337	8,296	4.05	336
1945---	949	----	21,254	577,200	27.2	------	384,360	8,592	4.03	346
1946---	1,124	----	23,331	627,878	27.0	------	413,554	8,635	4.04	349
1947---	1,426	----	28,812	775,546	26.9	------	533,061	8,638	4.03	348
1948---	1,668	----	33,274	886,129	26.6	------	620,385	8,675	4.03	350
1949---	1,787	----	35,851	943,939	26.3	------	729,150	8,907	4.03	359
1950---	1,973	----	40,100	1,088,872	27.2	------	836,922	9,172	4.03	370
1951---	2,143	----	42,949	1,186,615	27.6	------	885,859	9,195	4.02	370
1952---	2,109	----	40,105	1,166,297	29.1	------	928,376	9,192	3.98	366
1953---	2,151	----	40,983	1,226,588	29.9	------	1,020,326	9,253	3.98	368
1954---	2,175	----	41,254	1,311,698	31.8	------	1,079,557	9,363	3.97	372
1955---	2,288	----	41,240	1,333,866	32.3	------	1,175,378	9,502	3.95	375
1956---	2,266	----	40,984	1,406,306	34.4	------	1,229,971	9,713	3.94	383
1957 4/	1,700	2,310	41,638	1,479,799	35.5	------	1,256,129	9,894	3.93	389
1958---	1,544	2,293	39,985	1,548,884	38.7	------	1,345,750	10,068	3.91	394
1959---	1,500	2,337	40,284	1,607,538	39.9	------	1,406,665	10,327	3.88	401
1960---	1,509	2,397	41,293	1,746,752	42.3	------	5/1,343,725	5/10,561	5/3.87	5/409
1961---	1,395	2,448	42,558	1,867,469	43.9	28,649	1,280,785	10,796	3.87	418
1962---	1,436	2,472	42,034	1,958,355	46.6	32,794	1,531,826	11,032	3.86	426
1963---	1,441	2,516	41,937	2,006,534	47.8	35,378	1,674,803	11,286	3.85	434
1964---	1,420	2,474	40,670	2,010,144	49.4	35,689	1,746,475	11,685	3.83	447
1965---	1,424	2,439	40,075	2,087,581	52.1	------	---------	------	----	---

1/ Number of associations and supervisors include all plans.
2/ Estimated.
3/ Date for collecting data changed in 1924 from July 1 to January 1.
4/ Prior to 1957 associations were counted on the basis of supervisor circuits.
5/ National testing year changed in 1960 to begin May 1. These values are averages of 1959 and 1961.

TABLE 3.--Standard DHIA recordkeeping in the United States
(January 1, 1965)

State	Counties	Herds	Cows	Av. cows per herd	All milk cows 1/	DHIA cows as pct. of all milk cows 2/
	Number	Number	Number	Number	Thousands	Percent
Ala----------	52	306	26,510	86.6	205	12.9
Alaska--------	2	9	385	42.8	3	12.8
Ariz----------	6	123	20,206	164.3	52	38.9
Ark-----------	16	67	3,149	47.0	175	1.8
Calif---------	43	1,962	350,987	178.9	790	44.4
Colo----------	18	213	14,414	67.7	108	13.3
Conn----------	8	418	22,687	54.3	74	30.7
Del-----------	3	94	4,234	45.0	23	18.4
Fla-----------	29	102	18,086	177.3	178	10.2
Ga------------	90	403	28,493	70.7	181	15.7
Hawaii--------	1	11	1,970	179.1	14	14.1
Idaho---------	36	639	27,077	42.4	185	14.6
Ill-----------	81	1,589	64,256	40.4	478	13.4
Ind-----------	84	1,156	43,381	37.5	386	11.2
Iowa----------	97	1,764	61,732	35.0	780	7.9
Kans----------	105	751	31,643	42.1	285	11.1
Ky------------	66	523	20,920	40.0	455	4.6
La------------	21	64	4,882	76.3	211	2.3
Maine---------	15	477	19,958	41.8	87	22.9
Md------------	17	796	43,959	55.2	207	21.2
Mass----------	11	493	22,168	45.0	83	26.7
Mich----------	70	2,153	90,722	42.1	620	14.6
Minn----------	85	3,809	126,440	33.2	1,265	10.0
Miss----------	38	217	13,402	61.8	284	4.7
Mo------------	73	575	25,130	43.7	573	4.4
Mont----------	14	71	3,946	55.6	68	5.8
Nebr----------	50	326	14,400	44.2	278	5.2
Nev 3/--------	4	46	3,849	83.7	14	27.5
N. H----------	4/10	273	11,866	43.5	44	27.0
N. J----------	10	479	30,124	62.9	112	26.9
N. Mex--------	7	30	4,282	142.7	40	10.7
N. Y----------	49	3,789	173,363	45.8	1,198	14.5
N. C----------	85	788	44,283	56.2	242	18.3
N. Dak--------	27	162	6,015	37.1	244	2.5
Ohio----------	86	2,348	89,598	38.2	599	15.0
Okla----------	50	191	11,250	58.9	199	5.7
Oreg 3/-------	25	440	27,215	61.9	137	19.9
Pa------------	67	4,639	175,423	37.8	820	21.4
P. R----------	5	20	4,575	228.8	-	-
R. I----------	5	44	2,276	51.7	11	20.7
S. C----------	34	248	21,350	86.1	93	23.0
S. Dak--------	30	167	6,742	40.4	233	2.9
Tenn----------	55	491	26,809	54.6	459	5.8
Tex-----------	84	334	27.751	83.1	489	5.7
Utah----------	18	380	19,056	50.1	86	22.2
Vt------------	13	970	47,721	49.2	240	19.9
Va------------	81	1,034	61,214	59.2	292	21.0
Wash----------	26	928	54,870	59.1	216	25.4
W. Va---------	23	121	6,186	51.1	108	5.7
Wis-----------	69	3,003	125,446	41.8	2,115	5.9
Wyo-----------	6	39	1,180	30.3	26	4.5
Total or average----	2,000	40,075	2,087,581	52.1	16,065	13.0

1/ Preliminary figures for average number of milk cows on farms excluding heifers not yet fresh; estimated by the Statistical Reporting Service.

2/ Percentage of cows included in the Standard (including DHIR) recordkeeping plan.

3/ Based on last report available (1-1-64).

4/ Estimated.

TABLE 4.--Owner-Sampler recordkeeping in the United States
(January 1, 1965)

State	Counties	Herds	Cows	Av. cows per herd	All milk cows 1/	O.S. cows as pct. of all milk cows 2/
	Number	Number	Number	Number	Thousands	Percent
Ala-----------	7	15	970	64.7	205	0.5
Alaska--------	-	-	-	-	3	-
Ariz----------	3	25	5,628	225.1	52	10.8
Ark-----------	11	30	1,281	42.7	175	.7
Calif---------	29	211	14,854	70.4	790	1.9
Colo----------	7	22	1,028	46.7	108	1.0
Conn----------	8	75	3,044	40.6	74	4.1
Del-----------	2	14	391	27.9	23	1.7
Fla-----------	4	4	617	154.3	178	.3
Ga------------	1	1	100	100.0	181	.1
Hawaii--------	1	1	250	250.0	14	1.8
Idaho---------	7	15	321	21.4	185	.2
Ill-----------	29	429	13,473	31.4	478	2.8
Ind-----------	21	352	10,492	29.8	386	2.7
Iowa----------	91	1,605	38,476	24.0	780	4.9
Kans----------	28	95	2,932	30.9	285	1.0
Ky------------	12	35	900	25.7	455	.2
La------------	6	13	882	67.8	211	.4
Maine---------	12	118	4,050	34.3	87	4.7
Md------------	11	82	3,312	40.4	207	1.6
Mass----------	10	84	2,557	30.4	83	3.1
Mich----------	73	1,920	59,627	31.1	620	9.6
Minn----------	78	2,133	55,711	26.1	1,265	4.4
Miss----------	3	3	198	66.0	284	.1
Mo------------	20	62	2,317	37.4	573	.4
Mont----------	5	16	1,064	66.5	68	1.6
Nebr----------	30	76	2,690	35.4	278	1.0
Nev 3/--------	1	6	179	29.8	14	1.3
N. H----------	4/6	70	2,180	31.1	44	5.0
N. J----------	7	72	3,399	47.2	112	3.0
N. Mex--------	5	5	300	60.0	40	.8
N. Y----------	49	2,845	96,795	34.0	1,198	8.1
N. C----------	11	47	1,691	36.0	242	.7
N. Dak--------	18	47	958	20.4	244	.4
Ohio----------	86	1,454	39,137	26.9	599	6.5
Okla----------	12	20	816	40.8	199	.4
Oreg 3/-------	18	150	4,600	30.7	137	3.4
Pa------------	61	1,444	39,878	27.6	820	4.9
P. R----------	-	-	-	-	-	-
R. I----------	3	4	76	19.0	11	.7
S. C----------	2	2	78	39.0	93	.1
S. Dak--------	38	296	8,264	27.9	233	3.5
Tenn----------	3	3	126	42.0	459	-
Tex-----------	4	10	620	62.0	489	.1
Utah----------	12	30	1,006	33.5	86	1.2
Vt------------	13	508	19,624	38.6	240	8.2
Va------------	18	76	2,442	32.1	292	.8
Wash----------	29	233	6,990	30.0	216	3.2
W. Va---------	3	9	394	43.8	108	.4
Wis-----------	69	11,808	360,760	30.6	2,115	17.1
Wyo-----------	4	29	928	32.0	26	3.6
Total or average----	981	26,604	818,406	30.8	16,065	5.1

1/ Preliminary figures for average number of milk cows on farms during year excluding heifers not yet fresh; estimated by the Statistical Reporting Service.
2/ Percentage of cows included in the Owner-Sampler recordkeeping plan.
3/ Based on last report available (1-1-64).
4/ Estimated.

TABLE 5.--Weigh-a-Day-a-Month recordkeeping in the United States
(January 1, 1965)

State	Counties	Herds	Cows	Av. cows per herd	All milk cows 1/	WADAM cows as pct. of all milk cows 2/
	Number	Number	Number	Number	Thousands	Percent
Ala----------	21	29	2,187	75.4	205	1.1
Alaska-------	-	-	-	-	3	-
Ariz---------	-	-	-	-	52	-
Ark----------	-	-	-	-	175	-
Calif--------	-	-	-	-	790	-
Colo---------	-	-	-	-	108	-
Conn---------	-	-	-	-	74	-
Del----------	1	3	56	18.7	23	.2
Fla----------	8	20	5,634	281.7	178	3.2
Ga-----------	13	35	2,450	70.0	181	1.4
Hawaii-------	2	4	191	47.8	14	1.4
Idaho--------	-	-	-	-	185	-
Ill----------	36	253	7,170	28.3	478	1.5
Ind----------	-	-	-	-	386	-
Iowa---------	-	-	-	-	780	-
Kans---------	10	10	300	30.0	285	.1
Ky-----------	14	73	2,171	29.7	455	.5
La-----------	26	157	9,485	60.4	211	4.5
Maine--------	2	5	120	24.0	87	.1
Md-----------	-	-	-	-	207	-
Mass---------	-	-	-	-	83	-
Mich---------	-	-	-	-	620	-
Minn---------	-	-	-	-	1,265	-
Miss---------	12	75	2,500	33.3	284	.9
Mo-----------	34	101	3,175	31.4	573	.6
Mont---------	-	-	-	-	68	-
Nebr---------	12	25	750	30.0	278	.3
Nev 3/-------	-	-	-	-	14	-
N. H---------	-	-	-	-	44	-
N. J---------	-	-	-	-	112	-
N. Mex-------	7	6	1,610	268.3	40	4.0
N. Y---------	-	-	-	-	1,198	-
N. C---------	41	129	5,719	44.3	242	2.4
N. Dak-------	24	88	1,748	19.9	244	.7
Ohio---------	2	5	154	30.8	599	-
Okla---------	4	8	350	43.8	199	.2
Oreg 3/------	3	10	250	25.0	137	.2
Pa-----------	-	-	-	-	820	-
P. R---------	14	24	4,520	188.3	-	-
R. I---------	-	-	-	-	11	-
S. C---------	6	23	881	38.3	93	.9
S. Dak-------	-	-	-	-	233	-
Tenn---------	26	68	2,006	29.5	459	.4
Tex----------	7	16	1,340	83.8	489	.3
Utah---------	-	-	-	-	86	-
Vt-----------	-	-	-	-	240	-
Va-----------	2	2	326	163.0	292	.1
Wash---------	-	-	-	-	216	-
W. Va--------	21	60	1,477	24.6	108	1.4
Wis----------	-	-	-	-	2,115	-
Wyo----------	-	-	-	-	26	-
Total or average---	348	1,229	56,570	46.0	16,065	.4

1/ Preliminary figures for average number of milk cows on farms during year excluding heifers not yet fresh; estimated by the Statistical Reporting Service.
2/ Percentage of cows included in the Weigh-a-Day-a-Month recordkeeping plan.
3/ Based on last report available (1-1-64).

TABLE 6.--Records processed by State and regional computing centers
(January 1, 1965)

State	Standard DHIA (Incl. DHIR)				Dairy Herd Improvement Registry		Owner-Sampler		Total machine-processed records 1/		Machine-processed records as percent of total recordkeeping 1/	
	Herds	Cows	Herds	Cows	Herds	Cows	Herds	Cows	Herds	Cows	Herds	Cows
	No.	No.	Pct.2/	Pct.2/	No.	No.	No.	No.	No.	No.	Pct.	Pct.
Ala-------	306	26,510	100.0	100.0	12	1,417	8	424	314	26,934	89.7	90.8
Alaska----	9	385	100.0	100.0	5	221	-	-	9	385	100.0	100.0
Ariz------	31	3,758	25.2	18.6	10	1,192	2	131	33	3,889	22.3	15.1
Ark-------	67	3,149	100.0	100.0	8	305	30	1,281	97	4,430	100.0	100.0
Calif-----	220	54,057	11.2	15.4	54	9,574	2	723	222	54,780	10.2	15.0
Colo------	213	14,414	100.0	100.0	29	1,581	22	1,028	235	15,442	100.0	100.0
Conn------	376	20,233	90.0	89.2	91	5,467	68	2,754	444	22,987	90.1	89.3
Del-------	94	4,234	100.0	100.0	5	189	14	391	108	4,625	97.3	98.8
Fla-------	65	12,966	63.7	71.7	10	990	-	-	65	12,966	51.6	53.3
Ga--------	317	24,927	78.7	87.5	29	2,313	1	100	331	27,082	75.4	87.2
Hawaii----	2	267	18.2	13.6	-	-	1	250	3	517	18.8	21.4
Idaho-----	215	10,145	33.6	37.5	32	1,426	7	145	222	10,290	33.9	37.6
Ill-------	1,589	64,256	100.0	100.0	131	5,248	280	8,556	1,971	75,754	86.8	89.2
Ind-------	1,156	43,381	100.0	100.0	191	7,170	75	2,219	1,231	45,600	81.6	84.6
Iowa------	1,630	57,533	92.4	93.2	248	8,514	864	20,752	2,494	78,285	74.0	78.1
Kans------	692	30,712	92.1	97.1	105	4,200	56	1,698	748	32,410	87.4	92.9
Ky--------	392	15,680	75.0	75.0	30	1,200	35	900	427	16,580	67.7	69.1
La--------	51	3,594	79.7	73.6	6	469	13	882	221	13,961	94.4	91.6
Maine-----	413	17,504	86.6	87.7	56	2,608	106	3,651	519	21,155	86.5	87.7
Md--------	607	33,201	76.3	75.5	104	6,246	59	2,415	666	35,616	75.9	75.3
Mass------	463	20,720	93.9	93.5	78	3,563	68	2,109	531	22,829	92.0	92.3
Mich------	2,153	90,722	100.0	100.0	272	13,184	1,759	54,427	3,912	145,149	96.0	96.5
Minn------	2,539	85,865	66.7	67.9	176	6,578	1,776	46,389	4,315	132,254	72.6	72.6
Miss------	185	11,492	85.3	85.7	20	1,179	3	198	194	12,044	65.8	74.8
Mo--------	335	15,477	58.3	61.6	51	2,612	9	224	344	15,701	46.6	51.3
Mont------	17	836	23.9	21.2	2	106	16	1,064	33	1,900	37.9	37.9
Nebr------	275	12,360	84.4	85.8	47	2,220	76	2,690	351	15,050	82.2	84.4
Nev 3/----	21	1,769	45.7	46.0	7	472	2	83	23	1,852	44.2	46.0
N. H------	273	11,866	100.0	100.0	47	2,026	45	1,319	318	13,185	92.7	93.9
N. J------	387	22,264	80.8	73.9	51	3,644	30	1,267	417	23,531	75.7	70.2
N. Mex----	27	3,951	90.0	92.3	11	907	-	-	27	3,951	65.9	63.8
N. Y------	3,789	173,363	100.0	100.0	412	19,000	2,340	78,260	6,129	251,623	92.4	93.1
N. C------	788	44,283	100.0	100.0	89	4,834	47	1,691	922	50,002	95.6	96.7
N. Dak----	153	5,380	94.4	89.4	16	591	23	586	185	6,198	62.3	71.1
Ohio------	2,348	89,598	100.0	100.0	462	19,285	332	9,427	2,680	99,025	70.4	76.8
Okla------	191	11,250	100.0	100.0	48	2,935	20	816	211	12,066	96.3	97.2
Oreg 3/---	139	9,155	31.6	33.6	24	1,815	14	500	153	9,655	25.5	30.1
Pa--------	4,639	175,423	100.0	100.0	223	8,920	1,444	39,878	6,083	215,301	100.0	100.0
P.R-------	20	4,575	100.0	100.0	-	-	-	-	20	4,575	45.5	50.3
R.I-------	42	2,166	95.5	95.2	14	493	3	62	45	2,228	93.8	94.7
S.C-------	248	21,350	100.0	100.0	41	3,608	2	78	250	21,428	91.6	96.1
S. Dak----	167	6,742	100.0	100.0	29	1,233	45	1,337	212	8,079	45.8	53.8
Tenn------	427	23,545	87.0	87.8	56	3,690	2	96	431	23,735	76.7	82.0
Tex-------	249	20,308	74.6	73.2	55	4,400	9	485	264	21,099	73.3	71.0
Utah------	380	19,056	100.0	100.0	22	1,169	30	1,006	410	20,062	100.0	100.0
Vt--------	601	28,608	62.0	59.9	99	4,425	191	7,048	792	35,656	53.6	52.9
Va--------	900	54,885	87.0	89.7	99	7,150	75	2,415	976	57,512	87.8	89.9
Wash------	328	23,091	35.3	42.1	98	6,718	27	823	355	23,914	30.6	38.7
W. Va-----	100	3,910	82.6	63.2	16	738	6	159	166	5,546	87.4	68.8
Wis-------	2,842	119,364	94.6	95.2	448	18,816	7,052	232,716	9,894	352,080	66.8	72.4
Wyo-------	39	1,180	100.0	100.0	3	167	29	928	68	2,108	100.0	100.0
Total or average	33,510	1,555,460	83.6	74.5	4,172	206,808	17,118	536,381	51,071	2,113,026	75.2	71.3

1/ Includes WADAM Records: Georgia, 13 herds, 2,055 cows; Illinois, 102 herds, 2,942 cows; Louisiana, 157 herds, 9,485 cows; Mississippi, 6 herds, 354 cows; North Carolina, 87 herds, 4,028 cows; North Dakota, 9 herds, 232 cows; Tennessee, 2 herds, 94 cows; Texas, 6 herds, 306 cows; Virginia, 1 herd, 212 cows; West Virginia, 60 herds, 1,477 cows. Total - 443 herds, 21,185 cows.

2/ Percent of Standard DHIA and DHIR herds or cows being machine processed.

3/ Based on last report available (1-1-64).

TABLE 7.--Ten-year summary (1955-1964)

Year	U. S. Report					Standard Plan DHIA, production/cow			All DHIA plans	
	Milk cows 1/	Milk produced	Production/cow							
			Milk	Fat	Fat	Milk	Fat	Fat	Cows	DHIA cows as pct. of U.S. cows
	Thousands	Mil. Lb.	Lb.	Pct.	Lb.	Lb.	Pct.	Lb.	Thousands	Pct.
1955	21,044	122,945	5,842	3.85	225	9,502	3.95	375	2/1,781	2/8.5
1956	20,501	124,860	6,090	3.83	233	9,713	3.94	383	3/1,906	3/9.3
1957	19,774	124,628	6,303	3.81	240	9,894	3.93	389	2,118	10.7
1958	18,711	123,220	6,585	3.78	249	10,068	3.91	394	2,232	11.9
1959	17,901	121,989	6,815	3.76	256	10,327	3.88	401	2,439	13.6
1960	17,560	122,951	7,002	3.76	263	4/10,561	4/3.87	4/409	2,594	14.8
1961	17,367	125,442	7,223	3.75	271	10,796	3.87	418	2,727	15.7
1962	17,050	126,021	7,391	3.73	276	11,032	3.86	426	2,784	16.3
1963	16,534	125,009	7,561	3.72	281	11,286	3.85	434	2,823	17.1
1964	5/16,065	5/126,598	5/7,880	5/3.71	5/292	11,685	3.83	447	2,963	18.4

1/ Average number of milk cows on farms during year, excluding heifers not yet fresh; estimated by the Statistical Reporting Service.

2/ Report of Owner-Sampler testing included for first time.

3/ Report of WADAM testing included for first time.

4/ National testing year changed in 1960 to begin May 1. These values are averages of 1959 and 1961.

5/ USDA Statistical Reporting Service, Milk Production and Dairy Products, Annual Statistical Summary 1964, February 1965. Data are preliminary.

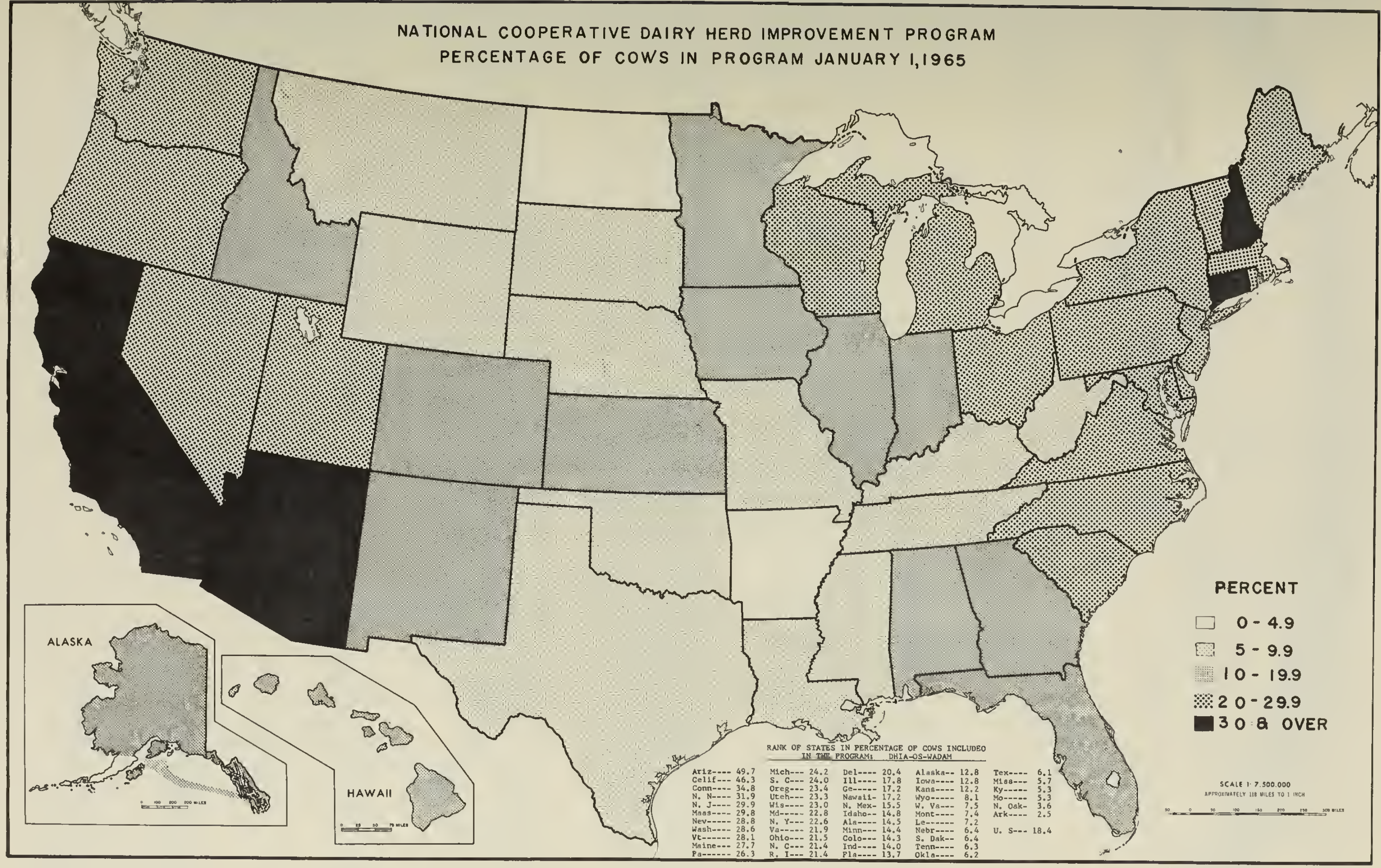
TABLE 8.--Counties, by State, with 25% or more cows included in the National Cooperative Dairy Herd Improvement Program (January 1, 1965)

State	County	Cows enrolled in DHIA plans
		Percent
ALABAMA		
	Montgomery	37
	Elmore	34
	Blount	32
	Russell	32
	Jefferson	28
	Shelby	27
	Talladega	27
	St. Clair	25
ARIZONA		
	Pima	98
	Pinal	93
	Greenlee	90
	Cochise	70
	Graham	68
	Maricopa	65
CALIFORNIA		
	Contra Costa	89
	Kern	77
	San Diego	71
	Ventura	69
	Madera	68
	Santa Barbara	62
	Sonoma	62
	San Luis Obispo	61
	Marin	59
	Monterey	59
	Placer	57
	San Bernardino	56
	San Joaquin	56
	Tulare	55
	San Benito	53
	Fresno	52
	Solano	51
	Stanislaus	50
	Tehama	50
	Shasta	49
	Del Norte	47
	Inyo-Mono	47
	Napa	47
	Merced	45
	Sacramento	45
	Santa Clara	45
	Yuba	43
	Colusa	40
	Kings	39
	Riverside	39
	Humboldt	33
	Los Angeles	27
	Sutter	26
COLORADO		
	Pueblo	35
	Chaffee	34
	Mesa	30
	Jefferson	26
CONNECTICUT		
	Tolland	44
	Litchfield	42
	New Haven	38
	Hartford	37
	Middlesex	30
	Windham	30
	New London	25
DELAWARE		
	Sussex	29
FLORIDA		
	Seminole	66
	Orange	65
	Jackson	63
	Manatee	63
	Washington	52
	Madison	50
	Osceola	48
	Jefferson	45
	Leon	41
	Alachua	38
	Putnam	37
	Highlands	36
	Lake	34
	Lafayette	32
	Dade	26
GEORGIA		
	Baldwin	96
	Douglas	90
	Macon	75
	Rabun	75
	Houston	69
	Newton	65
	Jefferson	62
	Clarke	60
	Sumter	58
	Peach	48
	Rockdale	48
	Butts	46
	Decatur	45
	Mitchell	44
	Fayette	40
	Jones	40
	Dougherty	39
	McIntosh	39
	Richmond	38
	Lee	36
	Coffee	35
	Floyd	35
	DeKalb	34
	Walton	34
	Jasper	33
	Clayton	32
	Polk	32
	Tattnall	30
	Dooly	28
	Carroll	27
	Henry	27
	Spalding	26
	Thomas	26
	Worth	26
	Heard	25
	Laurens	25
ILLINOIS		
	Kendall	74
	Stark	61
	Moultrie	54
	Will	53
	Bond	51
	Jasper	51
	Logan	48
	Champaign	47
	De Kalb	36
	Lake	34
	Du Page	33
	McHenry	31
	McLean	31
	Jackson	29
	Kane	29
	Livingston	29
	Knox	27
	Ogle	27
	Carroll	26
	Effingham	26
	Winnebago	25
INDIANA		
	Elkhart	38
	Cass	30
	Boone	27
IOWA		
	Dallas	34
	Lee	29
	Polk	28
	Scott	27
	Story	27
	Sac	25
	Webster	25
KANSAS		
	Stevens	74
	Comanche	53
	Finney	53
	Pawnee	44
	Saline	36
	Stafford	32
	Harper	31
	Harvey	28
	Meade	28
	Reno	27
LOUISIANA		
	Franklin	34
	Bossier	33
LOUISIANA (con't.)		
	Iberia	31
	West Carroll	30
	Ouachita	27
	Richland	27
	Lincoln	26
	Rapides	26
MAINE		
	Oxford	44
	Androscoggin Valley	38
	Cumberland	35
	York	30
	Somerset	29
	Penobscot	27
MARYLAND		
	Howard	52
	Dorchester	35
	Montgomery	35
	Carroll	30
	Harford	30
	Cecil	29
	Kent	29
MASSACHUSETTS		
	Barnstable	55
	Berkshire	39
	Essex	36
	Hampshire	29
	Franklin	27
	Worcester	26
MICHIGAN		
	Ingham	42
	Lenawee	40
	Muskegon	38
	Shiawassee	37
	Calhoun	36
	Jackson	36
	Oscoda	36
	Washtenaw	36
	Barry	34
	Kalamazoo	34
	Livingston	34
	Monroe	34
	Oakland	34
	Ionia	33
	St. Joseph	33
	Branch	32
	Clinton	31
	Eaton	31
	Genesee	29
	Iosco	28
	Gratiot	27
	Lapeer	27
	Hillsdale	26
	Huron	26
	Mason	26
	Saginaw	26
	Kent	25
MINNESOTA		
	Dakota	31
	Winona	30
	Goodhue	26
	Hennepin	25
MISSOURI		
	St. Francois	37
NEW HAMPSHIRE		
	Sullivan	42
	Merrimack	39
	Cheshire	36
	Belknap	34
	Grafton	32
	Coos-Essex	29
	Rockingham	28
NEW JERSEY		
	Burlington	51
	Somerset	40
	Morris	26
	Sussex	25
NEW MEXICO		
	Bernalillo	47
	Valencia	45
	Dona Ana	27
NEW YORK		
	Ontario	51
	Dutchess	45
	Genesee	43
	Columbia	41
	Tompkins	41
	Wayne	37
	Livingston	33
	Long Island	33
	Onondaga	33
	Orleans	33
	Schoharie	31
	Schuyler	31
	Monroe	30
	Seneca	30
	Chenango	29
	Cortland	28
	Niagara	28
	Chautauqua	27
	Tioga	27
	Wyoming	27
	Cayuga	25
NORTH CAROLINA		
	Perquimans	93
	Carteret	92
	Durham	66
	New Hanover	66
	Lenoir	61
	Brunswick	60
	Orange	58
	Wake	55
	Pitt	54
	Craven	52
	Beaufort	51
	Cumberland	51
	Hyde	46
	Pamlico	46
	Pender	46
	Columbus	45
	Duplin	45
	Onslow	44
	Wilson	42
	Jones	41
	Washington	41
	Wayne	41
	Guilford	38
	Rowan	38
	Chatham	37
	Halifax	35
	Randolph	35
	Henderson	33
	Cleveland	32
	Hoke	31
	Alamance	30
	Gaston	30
	Macon	29
	Davidson	27
	Montgomery	27
	Robeson	27
	Bladen	26
	Edgecombe	26
	Sampson	26
	Scotland	26
	Swain	26
	Caswell	25
	Catawba	25
OHIO		
	Erie	40
	Marion	39
	Allen	38
	Medina	38
	Auglaize	36
	Logan	36
	Lorain	35
	Champaign	34
	Clark	33
	Ashland	32
	Fayette	32
	Ottawa	32
	Fulton	31
	Miami	31
	Greene	30
	Fairfield	29

TABLE 8.--Counties, by State, with 25% or more cows included in the National Cooperative Dairy Herd Improvement Program (con't.)
(January 1, 1965)

State	County	Cows enrolled in DHIA plans
		Percent
OHIO (con't.)		
	Huron	29
	Richland	29
	Wayne	29
	Seneca	28
	Franklin	27
	Geauga	27
	Shelby	27
	Holmes	25
	Sandusky	25
PENNSYLVANIA		
	Montgomery	47
	Clinton	45
	Blair	42
	Union	41
	Bucks	40
	Dauphin	40
	Northumberland	36
	Allegheny	35
	Mifflin	35
	Montour	34
	Potter	34
	Lancaster	32
	Lebanon	32
	Perry	32
	Centre	31
	Cumberland	31
	Chester	30
	Huntingdon	30
	Luzerne	30
	McKean	30
	Schuylkill	30
	Wyoming	30
	Indiana	29
	Sullivan	29
	Bradford	28
	Columbia	28
	Monroe	28
	Elk	27
	Lehigh	27
	Carbon	26
	Fulton	26
	Northampton	26
	Tioga	26
	York	26
	Bedford	25
	Franklin	25
	Juniata	25
RHODE ISLAND		
	Kent	43
	Washington	34
SOUTH CAROLINA		
	Sumter	56
	Orangeburg	51
	Bamberg	49
	Saluda	44
	Calhoun	41
	Edgefield	36
	Beaufort	35
	Newberry	35
	Lee	34
	Marlboro	33
	Colleton	32
	Jasper	30
SOUTH DAKOTA		
	Butte	53
	Lawrence	48
TEXAS		
	Starr	80
	Wichita	65
	Burleson	60
	Milam	60
	Willacy	50
	Cameron	40
	Kaufman	40
	Randall	40
	Walker	40
	Wheeler	38
	Hays	33
	Williamson	33
	Madison	30
UTAH		
	Wasatch	44
UTAH (con't.)		
	Summit	42
	Salt Lake	34
	Davis	30
	Morgan	29
	Utah	28
	Sanpete	26
	Weber	26
	Washington	25
VERMONT		
	Bennington	44
	Windsor	40
	Addison	38
	Washington	31
	Windham	31
	Rutland	29
	Franklin	27
	Orleans	27
	Orange	25
VIRGINIA		
	James City	81
	Northampton	79
	Clarke	67
	Lancaster	55
	Powhatan	52
	City of Chesapeake	49
	City of Va. Beach	47
	Loudoun	45
	Warren	42
	Nansemond	41
	Prince George	41
	Culpeper	39
	Southampton	39
	Henrico	38
	King William	38
	Orange	38
	Bath	37
	Amelia	36
	Dinwiddie	36
	Madison	36
	Pulaski	35
	Rockingham	35
	Fauquier	32
	Prince William	31
	Augusta	30
	Hanover	30
	Charlotte	29
	Brunswick	28
	Roanoke	28
	Fairfax	26
	Franklin	26
WASHINGTON		
	Kittitas	60
	Grays Harbor	56
	Mason	46
	Thurston	46
	Pierce	40
	Skagit	39
	Spokane	36
	King	33
	Pacific	31
	Clallam	27
	Grant	26
	Clark	25
	Cowlitz	25
	Stevens	25
WISCONSIN		
	Kenosha	44
	Winnebago	42
	Kewaunee	35
	Manitowoc	35
	Racine	35
	Rock	33
	Calumet	32
	Walworth	32
	Green Lake	31
	Waukesha	31
	Columbia	30
	Fond du Lac	30
	Dunn	29
	Outagamie	29
	Barron	28
	Brown	26
	St. Croix	26
	Sheboygan	26
	Florence	25
	Jefferson	25
	Washington	25

NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM
PERCENTAGE OF COWS IN PROGRAM JANUARY 1,1965



RANK OF STATES IN PERCENTAGE OF COWS INCLUDED IN THE PROGRAM: DHIA-OS-WADAM

Ariz----	49.7	Mich---	24.2	Del----	20.4	Alaska--	12.8	Tex----	6.1
Calif---	46.3	S. C---	24.0	Ill----	17.8	Iowa----	12.8	Miss---	5.7
Conn----	34.8	Oreg---	23.4	Ga-----	17.2	Kans----	12.2	Ky-----	5.3
N. H----	31.9	Utah---	23.3	Hawaii-	17.2	Wyo-----	8.1	Mo-----	5.3
N. J----	29.9	Wis----	23.0	N. Mex-	15.5	W. Va---	7.5	N. Dak-	3.6
Mass----	29.8	Md-----	22.8	Idaho--	14.8	Mont----	7.4	Ark----	2.5
Nev-----	28.8	N. Y---	22.6	Ala----	14.5	La------	7.2		
Wash----	28.6	Va-----	21.9	Minn---	14.4	Nebr----	6.4	U. S---	18.4
Vt------	28.1	Ohio---	21.5	Colo---	14.3	S. Dak--	6.4		
Maine---	27.7	N. C---	21.4	Ind----	14.0	Tenn----	6.3		
Pa------	26.3	R. I---	21.4	Fla----	13.7	Okla----	6.2		

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RECORD BOOK
A plan for every size herd
STANDARD DHIA
OWNER SAMPLER
WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-158
(Vol. 41, No. 3)

Dairy-Herd-Improvement Letter

April-May 1965

U.S. ARTIFICIAL INSEMINATION (AI) PARTICIPATION REPORT FOR 1964

An estimated total of 7,747,953 cows were bred artificially in the U.S. in 1964. Dairy to dairy and beef to beef inseminations were 6,165,599 and 464,959 cows, respectively. Of the 7,282,994 dairy cow total, 15.3 percent, or 1,117,395, represented inseminations by beef bulls.

Because of incomplete reporting, portions of the tabular material presented in this report are estimations based on averages from complete reports. The report includes two strictly beef operations and a report of services performed for individual ranchers who have their own beef bulls.

Table 1 shows that 41.4 percent of the nation's cows and heifers which were bred for dairy purposes were bred artificially, of which an estimated 10.6 percent were registered. The top 10 States in number and percentage of dairy cows bred artificially by dairy and beef bulls are as follows:

Rank	State	No. of dairy cows bred artificially	State	Pct. of dairy cows bred artificially
1	Wis.	1,392,274	Pa.	64.1
2	N. Y.	707,237	Conn.	60.3
3	Minn.	644,047	Maine	59.4
4	Pa.	583,690	Wis.	58.5
5	Calif.	378,892	Mass.	57.8

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Issued June 1965

Rank	State	No. of dairy cows bred artificially	State	Pct. of dairy cows bred artificially
6	Mich.	371,683	Wash.	55.7
7	Ohio	331,363	Fla.	55.3
8	Iowa	279,122	Mich.	55.2
9	Ill.	236,965	N. J.	55.1
10	Ind.	144,886	N. H.	53.8

Table 2 summarizes the AI program since 1939.

Table 3 shows that an estimated 654,311 herds received AI service in 1964. A total of 1,867 dairy and 449 beef bulls were reported in service during 1964. Also reported were inseminations to 2,731 swine and 1,845 goats.

The accompanying map illustrates the AI density in the United States in 1964.

TABLE 1.--Status of artificial breeding in the United States, January 1, 1965

State	Studs 1/	Cows bred during 1964-- to dairy sires: Reg. dairy 2/	Total dairy	to beef sires: Dairy cows	Beef cows	All U.S. milk cows 3/	Dairy cows bred as pct. of all milk cows 4/
	Number	Number	Number	Number	Number	Thousands	Percent
Alabama----------	0	4,647	39,071	6,686	2,809	220	20.8
Alaska-----------	1	88	1,202	40	--	3	41.4
Arizona----------	0	1,202	14,383	2,325	270	57	29.3
Arkansas---------	0	2,078	18,626	4,030	3,511	188	12.1
California--------	5	28,400	340,753	38,139	6,163	867	43.7
Colorado---------	5/2	5,007	39,767	3,545	6/7,406	118	36.7
Connecticut-------	1	6,583	42,609	7,422	1,406	83	60.3
Delaware---------	0	1,904	6,571	1,368	163	25	31.8
Florida----------	0	1,580	92,738	8,923	5,534	184	55.3
Georgia----------	0	5,429	42,589	7,560	2,748	197	25.5
Hawaii-----------	0	420	3,306	597	185	15	26.0
Idaho------------	0	5,023	73,201	11,239	6/8,199	204	41.4
Illinois---------	3	33,956	197,242	39,723	20,174	517	45.8
Indiana----------	1	16,004	123,329	21,557	9,979	419	34.6
Iowa-------------	1	18,181	227,230	51,892	29,178	835	33.4
Kansas-----------	1	8,307	71,065	10,129	11,268	311	26.1
Kentucky---------	1	14,575	97,594	25,458	8,964	501	24.6
Louisiana--------	1	7,293	48,923	15,176	5,320	245	26.2
Maine------------	1	4,997	49,186	6,624	535	94	59.4
Maryland---------	1	11,751	78,301	10,760	1,460	219	40.7
Massachusetts-----	0	6,415	43,167	7,678	1,089	88	57.8
Michigan---------	1	36,332	322,761	48,922	6,024	673	55.2
Minnesota--------	2	34,458	539,117	104,930	10,020	1,407	45.8
Mississippi-------	1	4,524	37,187	8,030	3,046	303	14.9
Missouri---------	0	11,763	93,200	35,816	10,890	608	21.2
Montana----------	0	604	11,496	793	6/21,285	73	16.8
Nebraska---------	0	5,604	47,822	9,276	6/30,405	301	19.0
Nevada-----------	0	247	2,960	500	6/859	17	20.4
New Hampshire-----	1	4,291	23,061	4,356	119	51	53.8
New Jersey--------	0	6,445	56,633	8,943	521	119	55.1
New Mexico--------	0	2,322	17,276	2,143	2,233	43	45.2
New York---------	1	119,350	613,496	93,741	3,785	1,325	53.4
North Carolina----	1	9,924	70,269	11,971	5,033	261	31.5
North Dakota------	0	1,461	26,094	4,274	4,590	262	11.6
Ohio-------------	2	45,510	273,397	57,966	21,225	636	52.1
Oklahoma---------	0	2,670	25,728	2,097	3,892	212	13.1
Oregon-----------	0	4,734	52,174	14,841	10,188	150	44.7
Pennsylvania------	3	128,701	486,577	97,113	8,838	911	64.1
Puerto Rico-------	1	6,226	50,802	4,245	--	--	--
Rhode Island------	0	594	4,388	740	91	12	42.7
South Carolina----	0	3,938	25,604	3,167	1,011	98	29.4
South Dakota------	0	2,295	26,907	3,690	6/26,487	256	12.0
Tennessee---------	3	12,894	85,575	12,030	13,041	495	19.7
Texas------------	1	4,580	74,368	10,763	17,517	523	16.3
Utah-------------	1	2,475	41,966	6,047	1,870	99	48.5
Vermont----------	0	18,096	109,186	20,488	3,231	266	48.7
Virginia---------	1	15,162	92,917	13,693	4,188	327	32.6
Washington--------	2	11,066	110,641	29,703	18,185	252	55.7
West Virginia-----	0	1,395	18,467	2,407	2,908	117	17.8
Wisconsin---------	6	88,921	1,169,179	223,095	15,216	2,378	58.5
Wyoming----------	0	362	5,498	744	6/10,062	28	22.3
Armour and Co. 7/-	-	--	--	--	30,318	--	--
Reported by NAAB 7/	-	--	--	--	51,520	--	--
United States-----	46	770,784	6,165,599	1,117,395	464,959	17,593	41.4

1/ States without studs purchase semen from studs in other States. See table 3 for location of studs.
2/ Data for registered dairy cows may be all or partially estimated when incomplete report was given.
3/ Preliminary figures for number of cows and heifers two years old and over kept for milk; estimated by the Statistical Reporting Service.
4/ Percentage of all dairy cows bred included in the artificial insemination program.
5/ One all-beef stud in Colorado serviced 30,000 beef cows in 6 States; see table 3, footnote 2.
6/ Includes cows serviced by an all-beef stud in Colorado; see table 3, footnote 2 for breakdown.
7/ These figures are included in U.S. totals, but not apportioned by States. For report from NAAB, see table 3, footnote 3 for breakdown.

TABLE 2.--Status of artificial-breeding program in the United States (1939-1965, inclusive)

Year	Studs	Sires in service				Herds [1]	Dairy cows bred		Beef cows bred to beef bulls	Total cattle bred	Cows bred per sire
		Dairy	Beef	Total	Average per stud		to dairy bulls	to beef bulls			
	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number
1939	7	--	--	33	4.7	646	--	--	--	7,359	228
1940	25	--	--	138	5.5	2,971	--	--	--	33,977	246
1941	35	--	--	237	6.8	5,997	--	--	--	70,751	299
1942	46	--	--	412	9.0	12,118	--	--	--	112,788	274
1943	59	--	--	574	9.7	23,448	--	--	--	182,524	318
1944	56	--	--	657	11.7	28,627	--	--	--	218,070	332
1945	67	--	--	729	10.9	43,998	--	--	--	360,732	495
1946	78	--	--	900	11.5	73,293	--	--	--	537,376	597
1947	84	--	--	1,453	17.3	140,571	--	--	--	1,184,168	815
1948	91	--	--	1,745	19.2	224,493	--	--	--	1,713,581	982
1949	90	--	--	1,940	21.6	316,177	--	--	--	2,091,175	1,078
1950	97	--	--	2,104	21.7	409,300	--	--	--	2,619,555	1,245
1951	94	--	--	2,187	23.3	548,300	--	--	--	3,509,573	1,605
1952	94	--	--	2,324	24.7	671,100	--	--	--	4,295,243	1,848
1953	96	--	--	2,598	27.1	755,000	--	--	--	4,845,222	1,865
1954	93	--	--	2,661	28.6	805,000	--	--	--	5,155,240	1,937
1955	79	--	--	2,450	31.0	845,900	--	--	--	5,413,874	2,210
1956	79	--	--	2,553	32.3	900,400	--	--	--	5,762,656	2,257
1957	75	--	--	2,651	35.3	946,000	--	--	--	6,055,982	2,284
1958	71	--	--	2,676	37.7	975,372	--	--	--	6,645,568	2,483
1959	64	--	--	2,460	38.4	930,059	--	--	--	6,932,294	2,816
1960	62	--	--	2,544	41.0	910,000	--	--	--	7,144,679	2,808
1961	56	--	--	2,486	44.4	863,781	7,047,148	[2]435,592	--	7,482,740	3,010
1962	56	2,036	420	2,456	43.9	862,150	6,837,681	[2]911,006	--	7,748,687	3,155
1963	51	2,158	401	2,559	50.2	621,141	6,468,545	969,748	235,289	7,673,582	2,999
1964	[3]50	2,140	398	2,538	50.8	654,311	6,165,599	1,117,395	464,959	7,747,953	3,053
1965	[4]46	1,867	449	2,316	50.3	--	--	--	--	--	--

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[1] Prior to 1963, number of herds largely reflected membership rather than those actually serviced.
[2] Probably includes some beef to beef inseminations.
[3] Not shown are inseminations to 2,731 hogs and 1,845 goats.
[4] Includes one all-beef stud.

TABLE 3.--Artificial-breeding organization bull studs, January 1, 1965

State, name, and location of studs	Herds serviced	Cows bred 1964				Number and breed of bulls used									Inseminations of--	
		Dairy total	Dairy to beef	Beef to beef	Total	Ayrshire	Brown Swiss	Guernsey	Holstein	Jersey	Red Dane	Shorthorn	Beef	Total	Swine	Goats
ALASKA																
Matanuska Valley Breeders Assn., Palmer----------	50	901	--	--	901	--	--	--	4	--	1	--	--	5	--	--
CALIFORNIA																
Adohr Farms Inseminating Service, P.O. Box 88, Camarillo 93110--------	40	7,100	--	--	7,100	--	--	12	12	--	-	--	--	24	--	--
Calif. Dairy Breeders, Inc., P.O.Box 188,Davis-	[1] 1,705	48,229	2,300	700	51,229	1	--	5	9	4	-	2	4	25	--	1
Excelsior Breeding Service, 7401 Adams, Rt. 1, Corona-----------	126	25,924	--	--	25,924	--	--	--	21	--	-	--	--	21	--	--
Jessup Breeders, 5471 San Fernando Rd., W., Glendale 91203---------	1,143	105,255	9,690	4,754	119,699	--	2	7	25	4	-	--	3	41	--	973
Pacific Breeders Co-op., Inc., 1464 Middle Two Rock Rd., Petaluma------	450	29,355	823	163	30,341	--	--	3	7	5	-	--	1	16	--	--
COLORADO																
Colorado State Univ.,ABS, 809 City Park Avenue, Fort Collins-----------	[1] 1,172	10,318	677	3,073	14,068	--	--	--	1	--	-	1	5	7	--	2
CONNECTICUT																
New England Selective Breeding Assn., Inc., Newton Rd., Woodbridge--	6,538	96,250	15,507	2,936	114,693	1	4	9	18	10	-	--	6	48	--	19
ILLINOIS																
Curtiss Breeding Service, Inc., Cary-------------	[1] 87,216	850,400	153,195	43,000	1,046,595	3	4	15	69	12	-	3	44	150	--	--
Northern Ill. Breeding Co-op., Rt. 1,Hampshire-	8,000	79,645	12,823	6,836	99,304	--	5	5	23	--	-	1	1	35	710	5
Southern Ill. Breeding Assn., Breese----------	10,024	42,374	13,836	10,902	67,112	--	--	5	15	2	-	3	10	35	--	9
INDIANA																
John A. Newman & Sons, Rt. 2, Box 21, Culver---	25	400	--	--	400	--	--	--	6	--	-	--	--	6	--	--
IOWA																
Eastern Iowa Breeders, Hiawatha---------------	25,355	102,750	26,670	9,662	139,082	--	5	7	20	1	-	2	19	54	--	6
KANSAS																
Kansas ABS Unit,Anderson Hall, Kansas State Univ., Manhattan--------------	7,000	33,916	4,701	4,630	43,247	4	2	1	19	2	-	4	14	46	--	10

[1] Data may be all or partially estimated when incomplete report was given.

TABLE 3.--Artificial-breeding organization bull studs, January 1, 1965 (con't.)

State, name, and location of studs	Herds serviced	Cows bred 1964				Number and breed of bulls used									Inseminations of--	
		Dairy total	Dairy to beef	Beef to beef	Total	Ayrshire	Brown Swiss	Guernsey	Holstein	Jersey	Red Dane	Shorthorn	Beef	Total	Swine	Goats
KENTUCKY																
Ky. Artificial Breeding Assn., 1930 Herr Lane, Rt. 6, Louisville-------	12,670	67,069	19,810	7,145	94,024	--	5	5	16	9	-	--	8	43	--	3
LOUISIANA																
La. Animal Breeders Coop., Inc., Box B. D., LSU, Baton Rouge 70803-	5,876	47,091	14,904	5,182	67,177	--	--	6	8	7	-	--	11	32	--	6
MAINE																
Maine Breeding Coop., Inc., RFD 1, Augusta 04331------------------	4,300	42,813	5,187	514	48,514	1	--	12	14	13	-	3	2	45	--	2
MARYLAND																
Maryland-West Virginia Bull Stud, Inc., P.O.Box 555, Frederick----------	5,475	78,772	9,666	3,550	91,988	5	4	8	24	6	-	--	8	55	--	23
MICHIGAN																
Mich. Animal Breeders Coop., Inc., P. O. Box 511, East Lansing-------	19,784	240,706	36,444	3,000	280,150	--	3	13	34	8	4	4	12	78	--	12
MINNESOTA																
Midwest Genes, Inc., Box 111, Anoka 55303-------	[1] 53,941	321,927	93,164	35,977	451,068	--	7	16	80	3	-	8	46	160	--	2
Minn. Valley Breeders Assn., New Prague-------	48,408	249,021	54,368	3,098	306,487	2	3	9	49	1	-	3	23	90	--	--
MISSISSIPPI																
Mississippi ABC, Box 354, State College-----------	3,100	17,124	3,600	600	21,324	--	--	4	4	6	-	--	3	17	--	4
NEW HAMPSHIRE																
New Hampshire-Vermont Breeding Assn., P. O. Box 350, Concord--------	4,554	42,186	[1] 8,484	[1] 1,946	52,616	2	--	10	12	11	-	--	4	39	--	--
NEW YORK																
New York ABC, Inc., P. O. Box 528, Ithaca 14851--	28,802	489,000	66,583	2,058	557,641	11	10	24	104	27	-	--	13	189	1	--
NORTH CAROLINA																
N.C. Inst. Breeding Assn., Dept. of Animal Science, N.C. State Univ.,Raleigh	10	1,085	--	--	1,085	--	--	--	17	--	-	--	--	17	--	--
OHIO																
Central Ohio Breeding Assn., 1224 Alton-Darby Rd., Columbus 43204----	[1] 29,916	198,588	36,293	28,971	263,852	7	3	14	41	7	-	--	14	86	--	667
NOBA, Inc., P. O. Box 1015, Tiffin------------	[1] 17,563	163,438	32,424	7,709	203,571	--	3	11	30	14	-	1	12	71	--	16

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[1] Data may be all or partially estimated when incomplete report was given.

PENNSYLVANIA																
Atlantic Breeders Coop., P.O.Box 254, Lancaster--	20,235	209,405	44,642	4,464	258,511	4	4	13	32	6	-	--	--	59	--	43
Northeastern Breeders Assn., Inc., Box 90, Tunkhannock-------------	17,072	193,931	34,955	1,811	230,697	7	4	32	71	15	-	--	11	140	--	7
Zimmerman Dairy Farm, Rt. 2, Lehighton--------	1/150	1,800	--	--	1,800	--	--	--	4	--	-	--	--	4	--	--
PUERTO RICO																
Puerto Rico Artificial Breeding Assn., P. O. Box 958, Dorado---------	943	25,950	--	--	25,950	--	4	--	11	--	-	--	--	15	--	--
TENNESSEE																
East Tenn. ABA, Rt. 10, Tipton Station Road, Knoxville--------------	4,600	25,196	6,935	3,184	35,315	2	1	5	10	8	-	1	8	35	--	--
Tenn. Artificial Breeding Assn., Rt. 2, Granny White Pike, Brentwood---	6,100	28,860	1,285	4,349	34,494	--	3	3	6	5	-	--	4	21	--	--
West Tenn. Artificial Breeding Assn., Box 38, Yorkville---------------	2,972	7,128	609	2,997	10,734	--	--	--	5	5	-	--	6	16	--	--
TEXAS																
Texas A & M Dairy Breeding Ctr., Dairy Science Dept., College Station--	1	309	--	--	309	--	--	--	1	--	-	--	11	12	--	--
UTAH																
Cache Valley Breeding Assn., 1950 N. Main, Logan 84321-----------	8,103	59,745	7,687	13,125	80,557	3	3	3	25	1	-	5	19	59	--	--
VIRGINIA																
Va. ABA, Inc., P. O. Box 391, Rocky Mount--------	7,555	60,557	8,028	2,291	70,876	4	--	7	15	5	-	--	4	35	--	20
WASHINGTON																
All West Breeders, P. O. Box 197, Burlington 98233------------------	20,379	92,030	32,912	18,827	143,769	--	1	11	17	15	-	1	--	45	--	15
W. De Jong's Supreme Bull Service, Rt. 1, Monroe--	60	1,600	250	30	1,880	--	--	--	4	--	-	--	1	5	--	--

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1/ Data may be all or partially estimated when incomplete report was given.

TABLE 3.--Artificial breeding organization bull studs, January 1, 1965 (con't.)

State, name, and location of studs	Herds serviced	Cows bred 1964				Number and breed of bulls used									Inseminations of--	
		Dairy total	Dairy to beef	Beef to beef	Total	Ayrshire	Brown Swiss	Guernsey	Holstein	Jersey	Red Dane	Shorthorn	Beef	Total	Swine	Goats
WISCONSIN																
American Breeders Service, Inc., P. O. Box 3143, Madison----------------	[1]121,485	[1]1,155,591	[1]199,657	102,578	1,457,826	3	5	7	68	10	-	2	48	143	--	--
Associated Breeding Service, Lena--------------	1,191	12,452	3,564	225	16,241	--	--	3	12	--	-	--	5	20	--	--
Badger Breeders Cooperative, P. O. Box 469, Shawano-----------------	21,516	346,100	57,825	4,281	408,206	--	6	13	29	2	-	--	10	60	284	--
East Central Breeders Assn., Coop., P. O. Box 191, Waupun 53963------	4,856	72,990	16,800	400	90,190	--	5	4	27	--	-	--	5	41	--	--
Piper Bros. Farms, Inc., Rt. 4, Watertown--------	[1]9,726	104,976	9,628	2,107	116,711	--	2	3	29	--	-	--	8	42	--	--
Tri State Breeders Coop., Westby------------------	23,994	375,342	71,469	6,046	452,857	--	6	14	53	7	-	3	16	99	1,736	--
ALL-BEEF STUDS OR REPORTS																
International Beef Breeders, Box 29007, Denver, Colo. [2]--------	130	--	--	[2]30,000	[2]30,000	--	--	--	--	--	-	--	30	30	--	--
Armour and Co. Beef Cattle Improvement Research, P. O. Box 408, Morris, Ill. 60450-----	--	--	--	30,318	30,318	--	--	--	--	--	-	--	--	--	--	--
Report from National Assn. of Animal Breeders, P.O. Box 328, Columbia, Mo. 65202 [3]----------------	--	--	--	[3]51,520	[3]51,520	--	--	--	--	--	-	--	--	--	--	--
UNITED STATES-------------	654,311	6,165,599	1,117,395	464,959	7,747,953	60	104	319	1,101	231	5	47	449	2,316	2,731	1,845

[1] Data may be all or partially estimated when incomplete report was given.

[2] Beef to beef inseminations were reported for: Colorado, 1,450 cows; Idaho, 2,300 cows; Montana, 2,000 cows; Nebraska, 6,900 cows; Nevada, 200 cows; South Dakota, 16,100 cows; Wyoming, 1,050 cows.

[3] Services performed for individual ranchers who have their own beef bulls. By studs: Louisiana Animal Breeders Coop., 1,700; California Dairy Breeders, 240; Eastern Iowa Breeders, 1,000; Jessup Breeders, 4,500; International Beef Breeders, 20,000; Kansas ABS Unit, 1,000; Maryland-West Virginia Bull Stud, 2,000; New York ABC, 300; Consolidated Breeders Coop., 400; Iowa Breeders Coop., 2,500; M. F. A. Breeding Service, 10,000; Colorado State University, 7,880. Total: 51,520 cows.

EXTENSION SERVICE OFFICIALS WORKING WITH DAIRY BREEDING ORGANIZATIONS IN THE STATES

Ala------R. Sam Jones, Jr., Dairy Science Department, Auburn University, Auburn 36830.
Alaska---W. J. Sweetman, Research Staff Department, University of Alaska, Palmer.
Ariz-----W. R. Van Sant, Department of Dairy Science, University of Arizona, Tucson 85721.
Ark------Lantis Ratcliff, Animal Industry & Veterinary Science, University of Arkansas, Little Rock 72203.
Calif----R. D. Appleman, Extension Dairyman, University of California, Davis 95616.
Colo-----D. C. Jordan, Animal Science Department, Colorado State University, Fort Collins.
Conn-----R. H. Benson, Animal Industries Department, University of Connecticut, Storrs 06268.
Del------W. R. Hesseltine, Animal & Poultry Science Department, University of Delaware, Newark 19711.
Fla------C. W. Reaves, Extension Dairy Section, University of Florida, Gainesville 32603.
Ga-------J. N. Maddux, Animal Industry Division, University of Georgia, Athens.
Hawaii---H. R. Donoho, Animal Science Dept., 1825 Edmondson Road, University of Hawaii, Honolulu 96822.
Idaho----G. W. Cleveland, University of Idaho, 317½ N. 8th Street, Boise 83701.
Ill------J. G. Cash, Dairy Science Department, University of Illinois, Urbana 61803.
Ind------N. J. Moeller, Dept. of Animal Sciences, Purdue University, Lafayette.
Iowa-----D. E. Voelker, Animal & Dairy Science Dept., 202 Morrill Hall, Iowa State University, Ames 50010.
Kans-----Ralph Bonewitz, Dairy Science Department, Call Hall, Kansas State University, Manhattan 66504.
Ky-------J. C. Wilk, Dairy Science Department, University of Kentucky, Lexington 40506.
La-------H. W. Anderson, Agricultural Extension Service, Louisiana State University, Baton Rouge.
Maine----R. A. Corbett, Animal Sciences Department, University of Maine, Orono 04473.
Md-------Hugh Heaps, Manager, DHIC, University of Maryland, College Park 20740.
Mass-----S. N. Gaunt, Veterinary & Animal Science Dept., University of Massachusetts, Amherst.
Mich-----C. E. Meadows, Dairy Genetics & Breeding, Michigan State University, East Lansing.
Minn-----R. W. Wayne, Dairy Husbandry Dept., University of Minnesota, St. Paul 55101.
Miss-----G. B. Crain, Leader Extension Dairying, Mississippi State University, State College 39762.
Mo-------R. G. Hinders, Dairy Husbandry Dept., University of Missouri, Columbia 65202.
Mont-----E. J. Peace, Dairy & Swine Specialist, Montana State College, Bozeman 59715.
Nebr-----C. W. Nibler, Dairy Science Department, University of Nebraska, Lincoln 68503.
Nev------H. P. Adams, Animal Science Department, University of Nevada, Reno 89507.
N. H-----Hilton Boynton, Extension Dairyman, University of New Hampshire, Durham 03824.
N. J-----E. T. Oleskie, Animal Science Dept., Rutgers University, New Brunswick.
N. Mex---J. B. Ells, Dairy Department, New Mexico State University, University Park.
N. Y-----Raymond Albrectsen, Animal Husbandry Dept., Cornell University, Ithaca 14850.
N. C-----Frank Sargent, Animal Science Dept., North Carolina State University, Raleigh 27607.
N. Dak---G. R. Fisher, Dairy Husbandry Dept., North Dakota State University, Fargo.
Ohio-----C. D. McGrew, Dairy Science Department, Ohio State University, Columbus 43210.
Okla-----C. H. Burton, Extension Dairy Specialist, Oklahoma State University, Stillwater.
Oreg-----H. P. Ewalt, Animal Science Department, Oregon State University, Corvallis 97331.
Pa-------L. W. Specht, Dairy Science Extension Section, Pennsylvania State University, University Park 16802.
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Tenn-----C. K. Chappell, Dairy Husbandman Leader, Dairy Dept., University of Tennessee, Knoxville 37919.
Tex------A. M. Meekma, Dairy Science Dept., Texas A & M University, College Station 77843.
Utah-----J. J. Barnard, Extension Dairyman, Utah State University, Logan 84321.
Vt-------Robert Fitzsimmons, Animal & Dairy Science Dept., University of Vermont, Burlington 05401.
Va-------V. L. Baldwin, Dairy Science Dept., Virginia Polytechnic Institute, Blacksburg 24061.
Wash-----Bill F. Kelso, Extension Dairyman, Washington State University, Pullman 99163.
W. Va----W. L. Northern, Animal Industry & Veterinary Science Dept., West Virginia University, Morgantown 26506.
Wis------G. M. Werner, Dairy Science Department, University of Wisconsin, Madison 53706.
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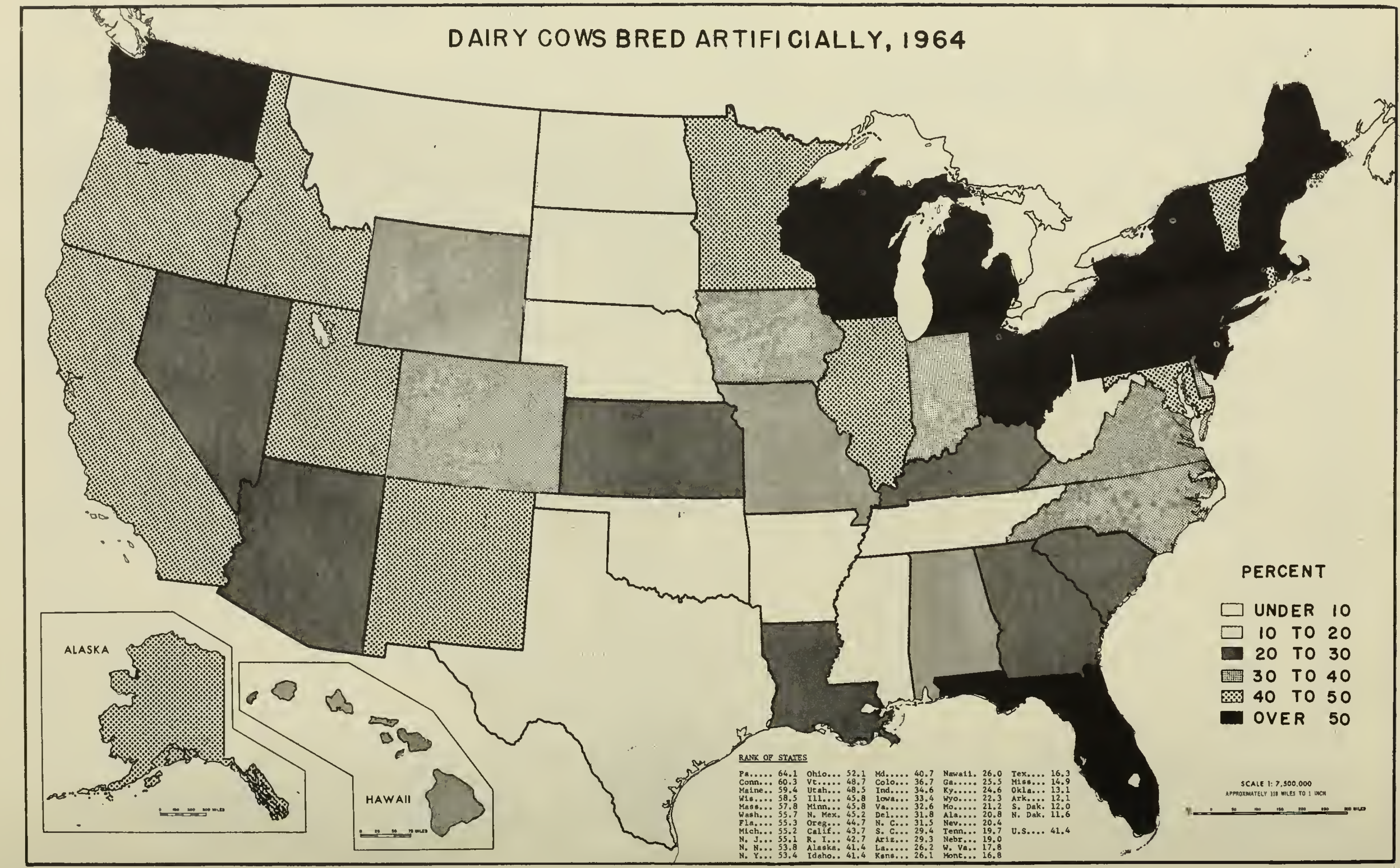
DAIRY COWS BRED ARTIFICIALLY, 1964



RANK OF STATES

Pa.....	64.1	Ohio...	52.1	Md.....	40.7	Hawaii.	26.0	Tex....	16.3
Conn...	60.3	Vt.....	48.7	Colo...	36.7	Ga.....	25.5	Miss...	14.9
Maine..	59.4	Utah...	48.5	Ind....	34.6	Ky.....	24.6	Okla...	13.1
Wis....	58.5	Ill....	45.8	Iowa...	33.4	Wyo....	22.3	Ark....	12.1
Mass...	57.8	Minn...	45.8	Va.....	32.6	Mo.....	21.2	S. Dak.	12.0
Wash...	55.7	N. Mex.	45.2	Del....	31.8	Ala....	20.8	N. Dak.	11.6
Fla....	55.3	Oreg...	44.7	N. C...	31.5	Nev....	20.4		
Mich...	55.2	Calif..	43.7	S. C...	29.4	Tenn...	19.7	U.S....	41.4
N. J...	55.1	R. I...	42.7	Ariz...	29.3	Nebr...	19.0		
N. H...	53.8	Alaska.	41.4	La.....	26.2	W. Va..	17.8		
N. Y...	53.4	Idaho..	41.4	Kans...	26.1	Mont...	16.8		

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ARS-44-161
Dairy-Herd-Improvement Letter (Vol. 41, No. 4)

June 1965

RÉSUMÉ OF 1964-65

Genetic Appraisal of Sires

As planned (ARS-44-148), quarterly sire evaluations were made during fiscal year 1965. These genetic appraisals were based on evaluations of 4,826 sires in the Artificial Insemination program and of 13,707 non-AI sires. Collectively, they resulted in 59,963 individual sire records (DHIA Form 1202's) for the cooperating States and were based on 1,685,797 lactation records reported since the last evaluation in 1963-64. A further summary of the quarterly sire evaluations is shown in table 1.

Genetic Appraisal of Cows

The semiannual DHIA Cow Performance Index Lists (ARS-44-154 and ARS-44-160) were issued in January and June 1965, respectively. These indexing procedures are used to evaluate and recognize genetically superior cows. The number of cow evaluations was 13,159 after screening some 550,000 potential qualifiers. Shown below is a summary of minimum milk index levels and number of cows evaluated by breed:

	ARS-44-154		ARS-44-160	
Breed	Minimum level 1/ Milk lb.	Cow evaluations No.	Minimum level 1/ Milk lb.	Cow evaluations No.
Ayrshire	1,995	88	1,550	233
Guernsey	1,312	490	1,200	1,175
Holstein	1,711	3,381	1,725	5,893

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Jersey	1,189	445	1,175	928
Brown Swiss	1,586	205	1,600	278
Milking Shorthorn	1,350	16	1,350	27
Total		4,625		8,534

1/ Index equated to genetic superiority over herdmates. The average milk index value of all cows was greater than 2,000 pounds.

Cow Production Levels

The 1963-64 production average for cows on Standard DHIA testing was 11,685 pounds of milk and 447 pounds of fat. This was an increase of 399 pounds of milk and 13 pounds of fat per cow over 1962-63. The superiority of DHIA cows over non-DHIA cows increased to 4,349 pounds, 91 pounds more than a year ago. Owner-Sampler cows averaged 10,885 pounds of milk and 404 pounds of fat.

Participation in DHIA Recordkeeping Plans

On January 1, 1965, the combined DHIA recordkeeping program included 67,908 herds and 2,962,557 cows. This is 18.4 percent of the nation's dairy cow population (compared to 17.1 percent in 1964) and is an increase of 244 herds and 140,035 cows over the previous year. Of the total, 40,075 herds and 2,087,581 cows were on the Standard plan; 26,604 herds and 818,406 cows were on the Owner-Sampler plan; and 1,229 herds and 56,570 cows were on the Weigh-a-Day-a-Month plan.

RECENT CHANGES IN METHODS OF GENETIC APPRAISAL

Sire Summaries

Effective in August 1964, a count of the number of herds (up to and including 25) represented among AI progeny, was added to AI sire evaluations. These counts were extended to natural-service evaluations in November 1964.

Commencing in February 1965, a 12-month lag interval between calving date and production run was introduced in order to reduce or eliminate the bias reported in initial or early AI sire summaries (ARS-44-148). This was accomplished by using only lactations with calving dates 364 days prior to the date of the sire evaluation.

In May 1965, the "Predicted Difference" was introduced as the final measure of breeding merit of bulls with AI progeny.

This expression replaces the "Predicted Average" which had been used by USDA since December 1962.

The predicted difference represents the expected deviation of a bull's AI progeny from herdmates in herds producing at levels near breed average, and is currently the most useful method of comparing AI bulls. It is computed as follows:

$$\text{Predicted Diff.} = \frac{\text{No. of daus.}}{\text{No. of daus.} + 12} (\text{Adj. Dau.Av.} - \text{Breed Av.})$$

Cow Indexes

The progeny of both AI and non-AI bulls were included in the two cow indexes (ARS-44-154 and ARS-44-160) computed during the year. Daughters of non-AI bulls were evaluated solely on the basis of their own performance versus herdmates. In the case of AI progeny, both performance of daughters versus herdmates and performance of the sire were included in the index.

The name and address of the herd owner were included in the Cow Performance Index List if the cow was from a herd whose records were machine processed.

3,467 SIRES SUMMARIZED IN MAY 1965

A total of 2,130 non-AI and 1,337 AI sires were evaluated in May 1965. A summary of the 16,748 sire records made available to the cooperating States is shown in table 2.

321,515 COWS SUMMARIZED IN MAY 1965

A total of 32,482 non-AI progeny and 289,033 AI progeny were evaluated in May 1965. Included in the evaluation were 482,118 lactation records received and processed since the previous summary.

1963 BREED-SEASON LACTATION AVERAGES

Breed-season lactation averages for DHIA cows that calved in 1963 are shown in table 3. The average of all available and usable 1,235,935 lactation records, 56 percent of which represent grade cows, was 12,326 pounds of milk and 471 pounds of fat. This represents an increase of 373 pounds of milk and 12 pounds of fat over 1962. The usual and expected seasonal trends were evident.

Shown in table 4 are lactation averages grouped within breed by registered and non-registered categories. By weight-ing the within-breed milk yield differences between registered and grade cows by the number of records reported in the respective breed, an overall registered breed superiority of 998 pounds of milk and 45 pounds of fat can be obtained. However, it should be recognized that such gross differences that are not within-herd are not necessarily reflective of their producing ability under comparable environments.

TABLE 1.--Sire summaries made in 1964-65

Evaluation	AI		Non-AI		Summaries to States	Records added since previous run
	Sires	Progeny	Sires	Progeny		
	Number	Number	Number	Number	Number	Number
August 1964	1,192	204,343	4,432	59,999	14,727	363,252
November 1964	948	213,472	2,012	18,994	9,583	393,593
February 1965	1,349	364,626	5,133	79,865	18,905	446,834
May 1965	1,337	289,033	2,130	32,482	16,748	482,118
Overall	4,826	1,071,474	13,707	191,340	59,963	1,685,797

TABLE 2.--Number of sire records summarized May 1965, by State and breed

State	Ayrshire	Guernsey	Holstein	Jersey	Brown Swiss	Shorthorn	Red Dane	Other	Total
	Number	Number	Number	Number	Number	Number	Number	Number	Number
Maine----------------	23	58	118	48	10	2	--	--	259
New Hampshire--------	30	67	149	40	20	2	--	--	308
Vermont--------------	38	67	244	109	33	2	--	--	493
Massachusetts--------	47	99	213	81	44	1	--	--	485
Rhode Island---------	18	36	81	22	--	--	--	--	157
Connecticut----------	38	137	221	68	36	--	--	--	500
New York-------------	74	176	554	128	59	5	1	--	997
New Jersey-----------	13	122	221	61	44	1	--	--	462
Pennsylvania---------	65	289	574	106	49	7	--	1	1,091
Ohio-----------------	35	129	299	116	70	3	--	--	652
Indiana--------------	17	136	231	63	43	5	--	2	497
Illinois-------------	35	133	362	65	72	8	--	--	675
Michigan-------------	29	117	416	73	40	8	2	--	685
Wisconsin------------	20	156	547	73	75	9	--	--	880
Minnesota------------	44	102	326	64	48	15	--	--	599
Iowa-----------------	32	89	325	95	66	13	--	--	620
Missouri-------------	--	88	151	71	20	6	--	--	336
North Dakota---------	2	17	63	6	15	3	--	--	106
South Dakota---------	18	12	100	8	16	--	--	--	154
Nebraska-------------	4	55	154	24	31	6	--	--	274
Kansas---------------	28	47	184	31	30	4	--	--	324
Delaware-------------	13	32	102	12	8	--	--	--	167
Maryland-------------	32	137	290	44	38	5	--	--	546
Virginia-------------	22	129	252	52	28	3	--	--	486
West Virginia--------	15	25	116	26	2	--	--	--	184
North Carolina-------	18	95	197	59	19	--	--	--	388
South Carolina-------	7	95	127	50	19	--	--	--	298
Georgia--------------	17	34	140	39	21	--	--	--	251
Florida--------------	9	89	60	60	10	--	--	--	228
Kentucky-------------	3	38	149	66	19	--	--	--	275
Tennessee------------	18	64	99	81	17	4	--	--	283
Alabama--------------	8	43	66	50	8	1	--	--	176
Mississippi----------	15	81	40	52	10	--	--	--	198
Arkansas-------------	1	31	49	15	6	3	--	--	105
Louisiana------------	6	47	31	28	4	--	--	--	116
Oklahoma-------------	17	33	102	33	10	6	--	--	201
Texas----------------	17	72	151	91	27	1	--	--	359
Montana--------------	--	10	28	9	8	--	--	--	55
Idaho----------------	2	45	126	51	13	2	--	--	239
Wyoming--------------	--	3	21	--	5	--	--	--	29
Colorado-------------	7	41	116	19	17	--	--	--	200
New Mexico-----------	--	39	52	17	--	--	--	--	108
Arizona--------------	2	49	65	27	4	--	--	--	147
Utah-----------------	4	29	133	22	1	--	--	--	189
Nevada---------------	--	6	16	26	2	--	--	--	50
Washington-----------	13	64	136	57	14	2	--	--	286
Oregon---------------	4	61	80	76	15	3	--	--	239
California-----------	9	61	213	51	31	--	--	--	365
Puerto Rico----------	--	--	10	--	--	--	--	--	10
Hawaii---------------	--	--	5	--	--	--	--	--	5
Alaska---------------	--	--	2	--	9	--	--	--	11
Total, individual sire records sent to States----------									16,748
Total sires summarized----------	137	662	1,922	508	187	46	2	3	3,467

TABLE 3.--Breed-season DHIA lactation averages for calvings in 1963

Calving month	Records		Average Production		
	Registered	Total	Milk	Fat	
	Pct.	No.	Lb.	Pct.	Lb.
AYRSHIRE					
January--------	80	2,011	10,651	4.02	428
February-------	80	1,757	10,673	3.99	426
March----------	78	1,980	10,592	3.97	421
April----------	78	1,480	10,534	3.98	419
May------------	78	1,223	10,380	3.98	413
June-----------	74	1,204	10,019	3.99	400
July-----------	77	2,025	9,971	4.00	399
August---------	79	2,788	9,854	4.06	400
September------	78	3,024	10,234	4.07	417
October--------	77	2,752	10,682	4.10	438
November-------	77	2,133	10,805	4.05	438
December-------	78	2,094	10,957	4.03	442
Overall--------	78	24,471	10,441	4.03	421
GUERNSEY					
January--------	67	11,220	9,344	4.73	442
February-------	67	9,459	9,341	4.71	440
March----------	67	10,013	9,327	4.69	437
April----------	67	8,162	9,220	4.70	433
May------------	67	7,140	9,110	4.69	427
June-----------	66	7,339	8,877	4.70	417
July-----------	69	10,145	8,661	4.77	413
August---------	66	13,393	8,565	4.80	411
September------	64	14,279	8,828	4.84	427
October--------	65	13,563	9,131	4.83	441
November-------	66	11,723	9,366	4.79	449
December-------	66	10,851	9,473	4.73	448
Overall--------	66	127,287	9,090	4.75	432
HOLSTEIN					
January--------	40	76,326	13,314	3.64	484
February-------	38	61,581	13,317	3.62	482
March----------	38	65,050	13,295	3.62	481
April----------	37	51,074	13,206	3.61	477
May------------	36	46,431	13,179	3.60	475
June-----------	35	50,544	12,903	3.62	467
July-----------	37	77,513	12,670	3.65	462
August---------	37	112,654	12,708	3.66	465
September------	37	122,718	13,126	3.67	482
October--------	38	112,582	13,452	3.69	496
November-------	39	96,167	13,610	3.67	499
December-------	38	90,919	13,670	3.64	498
Overall--------	38	963,559	13,212	3.65	482
JERSEY					
January--------	63	8,214	8,680	5.09	442
February-------	62	6,806	8,786	5.08	446
March----------	61	6,537	8,719	5.03	439
April----------	61	5,064	8,661	5.02	435
May------------	61	4,532	8,477	5.01	425
June-----------	58	4,559	8,247	5.02	414
July-----------	60	7,055	7,961	5.09	405
August---------	58	10,300	7,772	5.12	398
September------	59	10,826	7,972	5.17	412
October--------	60	10,085	8,207	5.17	424
November-------	59	8,500	8,460	5.14	435
December-------	59	8,379	8,585	5.10	438
Overall--------	60	90,857	8,333	5.10	425

TABLE 3.--Breed-season DHIA lactation averages for calvings in 1963 (Con't.)

Calving month	Records		Average Production		
	Registered	Total	Milk	Fat	
	Pct.	No.	Lb.	Pct.	Lb.
BROWN SWISS					
January--------	72	2,261	11,834	4.06	480
February-------	72	1,847	11,762	4.03	474
March---------	72	2,005	11,798	4.02	474
April---------	71	1,770	11,714	4.01	470
May-----------	71	1,618	11,612	4.01	466
June----------	71	1,596	11,312	4.06	459
July----------	72	2,181	11,012	4.10	451
August---------	66	2,546	10,943	4.12	451
September------	66	2,714	11,168	4.14	462
October--------	67	2,592	11,574	4.14	479
November-------	68	2,258	11,931	4.13	493
December-------	68	2,288	12,080	4.06	491
Overall--------	69	25,676	11,547	4.08	471
MILKING SHORTHORN					
January--------	82	343	9,214	3.74	345
February-------	80	281	9,285	3.72	345
March---------	84	359	9,372	3.71	348
April---------	85	249	9,572	3.69	353
May-----------	83	213	9,104	3.68	335
June----------	81	175	8,749	3.70	324
July----------	84	303	8,507	3.73	317
August---------	84	393	8,553	3.71	317
September------	84	390	8,918	3.79	338
October--------	82	398	9,015	3.78	341
November-------	81	299	9,468	3.78	358
December-------	81	310	9,339	3.77	352
Overall--------	83	3,713	9,081	3.74	340
RED DANE					
January--------	--	17	11,363	3.92	445
February-------	--	10	10,995	3.85	423
March---------	--	22	11,559	3.88	448
April---------	--	14	10,235	3.91	400
May-----------	--	11	11,529	4.18	482
June----------	--	13	11,161	4.16	464
July----------	--	39	11,594	3.95	458
August---------	--	43	10,727	4.00	429
September------	--	33	11,172	4.13	461
October--------	--	29	11,673	3.99	466
November-------	--	17	11,390	3.97	452
December-------	--	12	11,617	3.99	464
Overall--------	--	260	11,255	4.00	450
RED POLL					
January--------	80	5	6,394	4.00	256
February-------	57	7	8,180	4.17	341
March---------	46	13	7,706	3.88	299
April---------	50	10	8,079	3.79	306
May-----------	86	7	10,010	3.81	381
June----------	33	3	11,153	3.67	409
July----------	25	4	10,295	3.69	380
August---------	63	8	7,373	3.95	291
September------	100	7	6,913	3.88	268
October--------	87	23	7,491	4.26	319
November-------	90	10	8,054	4.13	333
December-------	73	15	6,831	4.17	285
Overall--------	71	112	7,836	4.01	314
United States--	44	1,235,935	12,326	3.82	471

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TABLE 4.--Breed-season DHIA lactation averages for calvings in 1963, by breed—registered and non-registered

Breed	Registered				Non-registered				All			
	Records	Milk	Fat		Records	Milk	Fat		Records	Milk	Fat	
	No.	Lb.	Pct.	Lb.	No.	Lb.	Pct.	Lb.	No.	Lb.	Pct.	Lb.
Ayrshire----------	19,087	10,595	4.0	428	5,384	9,893	4.0	395	24,471	10,441	4.0	421
Guernsey----------	84,402	9,285	4.8	447	42,885	8,708	4.6	403	127,287	9,090	4.8	432
Holstein----------	363,113	13,917	3.7	511	600,446	12,785	3.6	464	963,559	13,212	3.6	482
Jersey------------	54,477	8,488	5.2	439	36,380	8,100	5.0	403	90,857	8,333	5.1	425
Brown Swiss-------	17,786	11,684	4.1	479	7,890	11,238	4.0	453	25,676	11,547	4.1	471
Milking Shorthorn-	3,069	8,990	3.7	335	644	9,515	3.8	361	3,713	9,081	3.7	340
Red Dane----------	------	------	---	---	260	11,255	4.0	450	260	11,255	4.0	450
Red Poll----------	79	7,547	4.0	302	33	8,526	4.0	343	112	7,836	4.0	314
United States-----	542,013	12,431	3.9	489	693,922	12,244	3.7	457	1,235,935	12,326	3.8	471

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AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-162
Dairy-Herd-Improvement Letter (Vol. 41, No. 5)

July 1965

DHIA COWS NEAR THE 12,000-POUND LEVEL OF MILK PRODUCTION

In 1964-65, DHIA cows on Standard test produced an average of 11,976 pounds of milk and 457 pounds of butterfat. This record was made by 1,821,252 cows in 35,604 herds, averaging 51.2 cows per herd. It is an increase of 291 pounds of milk, 10 pounds of butterfat, and 1.8 cows per herd over 1963-64.

DHIA COWS EXCEED NON-DHIA COWS BY 4,708 POUNDS OF MILK

The importance of DHIA recordkeeping continues to be increasingly evident. In 1964-65, DHIA cows were superior in milk yield to non-DHIA cows by 65 percent, or 4,708 pounds. With milk in DHIA herds valued at $4.59 per hundredweight, this amounts to a yearly gross income advantage of $216 per cow or $10,800 for a 50-cow herd.

During the 3-year period since 1962, yearly increases in milk yield per cow have been 348 pounds in DHIA and 176 pounds for all other cows. Thus, in addition to the 4,708-pound superiority in milk yield in 1964-65, the rate of increase has been 98 percent more rapid for DHIA cows since 1962. Such statistics clearly demonstrate the importance of, and results from participation in DHIA recordkeeping. A summary of the production performance of cows in DHIA and non-DHIA herds in the United States is shown in table 1.

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DHIA SUMMARIES 1964-65

Table 2 provides a 10-year summary of the DHIA cow-year averages for herds reporting complete information. In 1964-65, 1,229,676 cows in 28,237 herds with complete reports averaged 11,744 pounds of milk and 449 pounds of butterfat. They were fed an average of 4,400 pounds of concentrates, 10,200 pounds of succulent forage, 3,800 pounds of dry forage, and were on pasture 151 days. They produced milk valued at $539 ($4.59 per cwt.), were fed at an estimated cost of $244, and returned an estimated $295 over feed cost. Shown below is a summary of the 10-year change since 1955-56:

	10-year change from 1955-56 to 1964-65	
	Gross change	Percent change
Cows per herd	+13.4 cows	+44.5
Per cow:		
Milk yield	+2,274 pounds	+24.0
Butterfat percentage	-.11 percent	-2.9
Butterfat yield	+77 pounds	+20.7
Concentrates fed	+1,500 pounds	+51.7
Succulent forage fed	+3,800 pounds	+59.4
Dry forage fed	-100 pounds	-2.6
Days on pasture	-23 days	-15.2
Value of product	+106 dollars	+24.5
Price per cwt. of milk	+2 cents	+.4
Cost of concentrates	+41 dollars	+47.7
Feed cost	+63 dollars	+34.8
Income over feed cost	+43 dollars	+17.1

Summaries of DHIA herd statistics for 1964-65 are shown in tables 3 through 8. Cow-year averages for each State reporting production data are shown in table 3 and for each State having complete reports in table 4.

Stratifications of herd averages by level of butterfat production, concentrates fed, and feed cost per hundredweight of milk are given in tables 5, 6, and 7, respectively. The trends apparent in these tabulations should be interpreted with caution because of the confounding effects resulting from disproportionate representation of breeds, milk prices, and feeding systems and costs.

Within-breed stratifications of DHIA herd averages by milk yield are shown in table 8. Breeds are tabulated separately to reduce the complicating effect of breed-to-breed differences in production and in feed and milk prices. Such tabulations are useful in establishing guidelines for production efficiency, especially within breeds. On the basis of the thumb rule that profitable production can be realized only if income more than doubles feed cost, milk production levels at or below which profit will not be expected under average conditions in the United States are shown below:

Breed	Highest production level at which income does not at least double feed cost		
	Milk level	Herds not exceeding level	
	Pounds	Number	Percent
Ayrshire	8,128	54	10.6
Guernsey	6,072	65	3.0
Holstein	9,068	1,076	5.2
Jersey	5,115	41	2.6
Brown Swiss	9,016	122	19.8
Milking Shorthorn [1]	7,984	50	[1]47.6

---

[1] Only 105 Milking Shorthorn herds represented.

Only 5.0 percent of the DHIA herds produced less than the milk levels indicated above. Approximately 1,950 herd owners (6.9 percent) reported income over feed cost of less than $200 per cow, and approximately 12,940 owners (45.8 percent) reported income over feed cost of $300 or more. However, if it is assumed that milk production levels of 7,000 pounds per cow are minimal for profit among herds at large, approximately half of the non-DHIA cows are marginal or sub-marginal producers.

In the Holstein herds summarized in table 8, estimated income over feed cost increased approximately $34 per cow for each 1,000-pound increase in milk production. As herds increased from 8,000 to 17,000 pounds in milk yield, feed cost increased 64 percent, feed cost per hundredweight of milk decreased 22 percent, and income over feed cost increased 142 percent. Reported net profit increased sharply as production level increased. Estimated net profit at milk production intervals of 1,000 pounds for herds averaging 10,000 to 19,000 pounds per cow was 11, 29, 39, 59, 73, 88, 120, 148, and 218 dollars, respectively. Changes and general trends were similar for each of the other breeds as well.

Although 12 less Ayrshire herds were tabulated this year than last, 92 herds produced 11,500 pounds of milk or more compared with 69 a year ago; 8 produced 13,500 pounds or more, whereas only 3 herds did so a year ago. Guernsey herds at or above the 11,500-pound level of production numbered 85 compared with 61 a year ago. Holstein herds at the 15,500-pound level or above increased 288 over last year. A total of 66 Holstein herds exceeded 17,499 pounds of milk. Jersey herds producing 9,500 pounds and above numbered 231 in 1964-65; in 1963-64, 187 such herds were reported. Brown Swiss herds at or above the 12,500-pound level of production numbered 104 this year compared with 72 a year ago. Even though 15 fewer Milking Shorthorn herds were reported this year than last, 14 herds produced at or above the 10,500-pound level this year compared to 9 herds last year. All of these production averages reflect the actual yield of DHIA cows during a 12-month period.

It must be realized that the applicability of these DHIA herd statistics to individual herds will have the greatest meaning where local feeding systems and costs and milk markets are resonably consistent with U.S. averages. Herds of the same breed having similar levels of milk yield may differ considerably in production efficiency if a wide range exists in milk prices, feeding systems and costs, and labor and other costs.

OWNER-SAMPLER HERD SUMMARIES 1964-65

Summaries of Owner-Sampler herd statistics are shown in tables 9 through 14. A total of 559,606 cows in 18,409 herds averaged 11,402 pounds of milk and 423 pounds of butterfat in 1964-65. This is an increase of 517 pounds of milk and 19 pounds of butterfat over 1963-64. The increase in reporting Owner-Sampler records was encouraging this year. The herds reported numbered 4,835 more than a year ago, and complete herd reports totaled 3,322 more than a year ago.

Cow-year averages by States for all data reported are given in table 9. Similar averages based on complete reports are shown in table 10. Stratifications of Owner-Sampler herds by butterfat production, level of concentrates fed, and feed cost per hundredweight of milk are shown in tables 11, 12, and 13, respectively. Summaries by breed with stratifications by level of milk yield are shown in table 14.

TABLE 1.--Summary of production of Standard DHIA and non-DHIA cows

	Standard DHIA cows							Non-DHIA cows 1/			Superiority of DHIA cows	
Year 2/	Herds Number	Cows Number	Cows per herd Number	Percent of all cows 3/ Percent	Milk Pounds	Fat Percent	Fat Pounds	Milk Pounds	Fat Percent	Fat Pounds	Milk Pounds	Fat Pounds
1930	27,888	507,549	18.2	2.3	7,642	3.96	303	4,435	3.92	174	3,207	129
1940	27,948	676,141	24.2	2.9	8,133	4.07	331	4,519	3.96	179	3,614	152
1950	40,100	1,088,872	27.2	4.9	9,172	4.03	370	5,113	3.95	202	4,059	168
1960	41,293	1,746,752	42.3	9.8	4/10,561	4/3.87	4/409	6,606	3.74	247	3,955	162
1961	42,558	1,867,469	43.9	10.6	10,796	3.87	418	5/6,550	5/3.74	5/245	4,246	173
1962	42,034	1,958,355	46.6	11.3	11,032	3.86	426	6,739	3.72	251	4,293	175
1963	41,937	2,006,534	47.8	11.8	11,286	3.85	434	6,872	3.71	255	4,414	179
1964	40,670	2,010,144	49.4	12.2	11,685	3.83	447	6,990	3.69	258	4,695	189
1965	40,075	2,087,581	52.1	13.0	11,976	3.82	457	7,268	3.67	267	4,708	190

1/ Derived using U.S. cow population and production figures, excluding heifers not fresh; estimated by the Statistical Reporting Service.

2/ The year for which the Standard January 1 enrollment is given.

3/ Calculated using U.S. calendar year cow numbers for year previous to stated year; for example: January 1, 1965 DHIA enrollment of 2,087,581 cows is 13.0 percent of the 1964 U.S. cows.

4/ Average of 1958-59 and 1960-61 because testing year changed in 1961.

5/ Comparison began to be made between DHIA production for the testing year ending May 14 of the stated year and U.S. production for the previous calendar year.

ABLE 2.--A 10-year summary of DHIA cow-year averages for herds reporting complete information

Year	Herds No.	Cows No.	Cows per herd No.	Milk Lb.	Fat Pct.	Fat Lb.	Conc. fed Cwt.	Succ. forage fed Cwt.	Dry forage fed Cwt.	Days on pasture No.	Value of product $	Cost of conc. $	Feed cost $	Income over feed cost $
1955-56	28,254	849,344	30.1	9,470	3.93	372	29	64	39	174	433	86	181	252
1956-57	27,133	863,275	31.8	9,621	3.92	377	30	66	39	173	448	88	183	265
1957-58	27,525	900,269	32.7	9,787	3.91	383	31	69	40	171	462	92	190	272
1958-59	27,796	902,074	32.5	10,042	3.89	391	33	75	40	174	475	93	195	280
1959-60 1/	23,220	795,892	34.3	10,045	3.89	391	33	76	40	169	479	93	196	283
1960-61	18,644	689,710	37.0	10,048	3.88	390	32	78	39	163	485	94	198	287
1961-62	22,853	882,827	38.6	10,676	3.87	413	36	82	40	165	502	103	207	295
1962-63	27,093	1,089,290	40.2	10,983	3.85	423	39	92	40	156	501	113	222	279
1963-64	27,893	1,173,099	42.1	11,428	3.84	439	42	98	38	151	521	120	237	284
1964-65	28,237	1,229,676	43.5	11,744	3.82	449	44	102	38	151	539	127	244	295

1/ Average of 1958-59 and 1960-61 because of change in testing year.

TABLE 3.--Summary of 1964-65 Standard DHIA cow-year production, by States 1/

State	Herd records	Cow-years	Cows per herd	Cow-year average production		
				Milk	Fat	Fat
	Number	Number	Number	Pounds	Percent	Pounds
Alabama	252	21,444	85.1	8,958	3.9	351
Alaska	5	164	32.8	11,127	3.7	414
Arizona	124	18,916	152.5	12,440	3.6	453
Arkansas	65	3,010	46.3	10,435	3.6	379
California	1,847	318,893	172.7	12,814	3.8	485
Colorado	184	11,486	62.4	12,214	3.7	451
Connecticut	413	21,686	52.5	12,492	4.0	494
Delaware	95	4,331	45.6	11,605	3.9	448
Florida	87	14,351	165.0	9,083	4.1	369
Georgia	317	21,926	69.2	10,495	3.8	403
Idaho	455	17,999	39.6	11,295	3.9	440
Illinois	1,444	56,247	39.0	11,911	3.8	458
Indiana	1,026	38,142	37.2	11,937	3.9	466
Iowa	1,466	50,373	34.4	11,648	3.8	438
Kansas	684	29,627	43.3	11,821	3.8	445
Kentucky	380	15,141	39.8	10,544	3.9	407
Louisiana	46	3,662	79.6	8,347	3.9	326
Maine	418	17,424	41.7	11,699	4.0	468
Maryland	691	37,274	53.9	11,279	3.9	441
Massachusetts	458	20,573	44.9	12,148	3.9	479
Michigan	1,967	78,535	39.9	12,499	3.8	469
Minnesota	3,119	101,344	32.5	11,886	3.7	441
Mississippi	137	9,094	66.4	8,196	4.1	333
Missouri	370	16,750	45.3	11,228	3.9	433
Montana	65	3,363	51.7	11,808	3.6	429
Nebraska	250	11,069	44.3	11,412	3.8	431
Nevada	19	1,866	98.2	11,713	3.9	457
New Hampshire	276	12,171	44.1	11,697	4.0	471
New Jersey	426	23,384	54.9	12,163	3.8	463
New Mexico	26	3,820	146.9	12,081	3.7	445
New York	3,596	170,811	47.5	12,854	3.7	475
North Carolina	715	39,607	55.4	11,376	3.8	429
North Dakota	139	4,925	35.4	10,946	3.7	407
Ohio	2,034	78,428	38.6	12,046	3.8	462
Oklahoma	143	8,177	57.2	10,821	3.6	393
Oregon	326	20,190	61.9	10,879	4.1	450
Pennsylvania	4,407	160,507	36.4	12,066	3.9	473
Puerto Rico	5	1,053	210.6	7,672	3.4	263
Rhode Island	36	1,773	49.3	12,036	3.9	470
South Carolina	226	19,081	84.4	9,753	4.0	393
South Dakota	144	5,795	40.2	11,466	3.6	412
Tennessee	432	22,637	52.4	9,692	4.1	394
Texas	273	22,112	81.0	10,657	3.7	396
Utah	351	16,176	46.1	12,297	3.7	457
Vermont	834	39,503	47.4	11,242	4.0	447
Virginia	968	55,707	57.5	11,732	3.8	445
Washington	705	41,603	59.0	12,394	3.9	485
West Virginia	190	8,030	42.3	10,627	3.9	411
Wisconsin	2,950	120,249	40.8	12,210	3.8	461
Wyoming	22	860	39.1	10,730	3.7	398
Total or average	35,604	1,821,252	51.2	11,976	3.8	457

1/ Includes all production data reported.

TABLE 4.--Summary of 1964-65 Standard DHIA records, by States [1]

State	Herds	Body weight	Cow-years	Milk	Fat	Fat	Days in milk	Concen-trates fed	Succ. forage fed	Dry forage fed	Value of product	Cost of concen-trates	Feed cost	Income over feed cost	Feed cost per cwt. milk
	No.	Cwt.	No.	Lb.	Pct.	Lb.	Pct.	Cwt.	Cwt.	Cwt.	$	$	$	$	$
Alabama---------	250	10	21,396	8,964	3.9	351	82	47	49	15	509	147	231	278	2.57
Arkansas--------	65	11	3,010	10,435	3.6	379	83	43	30	39	474	129	223	251	2.13
Connecticut-----	388	12	20,447	12,529	4.0	495	84	52	141	31	696	186	324	372	2.59
Delaware--------	95	12	4,331	11,605	3.9	448	85	41	139	23	615	125	278	337	2.40
Florida---------	78	10	13,177	9,045	4.1	369	83	46	65	22	583	147	254	329	2.81
Georgia---------	314	11	21,719	10,492	3.8	403	84	45	84	17	615	145	257	358	2.45
Idaho-----------	236	11	9,243	10,934	4.0	433	86	29	55	84	421	79	199	222	1.82
Illinois--------	1,423	12	55,482	11,898	3.8	458	84	41	81	42	468	98	194	274	1.63
Indiana---------	1,025	12	38,085	11,936	3.9	466	85	42	106	36	496	105	220	276	1.84
Iowa------------	1,466	12	50,373	11,648	3.8	438	85	46	97	42	423	107	187	236	1.61
Kansas----------	669	12	29,063	11,823	3.8	445	85	49	104	42	492	128	229	263	1.94
Kentucky--------	368	11	14,674	10,539	3.9	406	84	39	68	30	462	114	218	244	2.07
Louisiana-------	46	10	3,662	8,347	3.9	326	81	37	55	12	477	119	209	268	2.51
Maine-----------	416	12	17,375	11,696	4.0	468	85	45	74	45	603	161	274	329	2.34
Maryland--------	590	12	31,298	11,346	3.9	446	85	44	130	26	570	134	282	288	2.48
Massachusetts---	447	12	19,903	12,191	3.9	479	85	49	114	41	704	175	330	374	2.71
Michigan--------	1,940	12	77,350	12,508	3.7	469	86	44	98	45	514	97	200	314	1.60
Minnesota-------	3,023	12	98,270	11,895	3.7	441	85	42	94	48	419	86	168	251	1.41
Mississippi-----	131	10	8,598	8,316	4.1	337	83	36	84	12	425	113	193	232	2.32
Missouri--------	358	12	16,302	11,250	3.9	434	85	42	75	36	474	111	210	264	1.87
Montana---------	18	14	943	12,140	3.4	418	86	36	49	95	489	84	207	282	1.71
Nebraska--------	250	12	11,069	11,412	3.8	431	85	44	103	48	454	114	203	251	1.78
New Hampshire---	276	12	12,171	11,697	4.0	471	84	43	102	45	629	151	302	327	2.58
New Jersey------	384	12	21,060	12,123	3.8	461	84	43	152	35	634	147	320	314	2.64
New York--------	3,596	12	170,811	12,854	3.7	475	85	43	114	44	583	142	267	316	2.08
North Carolina--	713	12	39,403	11,364	3.8	429	85	47	159	12	655	160	295	360	2.59
North Dakota----	138	13	4,899	10,945	3.7	407	83	41	95	46	402	83	157	245	1.44
Ohio------------	1,978	12	76,434	12,054	3.8	462	86	44	112	40	512	110	236	276	1.96
Oklahoma--------	143	11	8,177	10,821	3.6	393	82	45	45	52	499	124	223	276	2.06
Oregon----------	13	11	635	9,648	4.4	425	86	31	87	42	504	94	205	299	2.13
Pennsylvania----	4,393	11	159,943	12,073	3.9	473	85	46	104	39	580	144	282	298	2.34
Puerto Rico-----	3	12	801	8,339	3.5	289	74	41	---	--	642	171	265	377	3.18
Rhode Island----	35	13	1,760	12,036	3.9	470	85	48	143	31	775	176	365	410	3.03
South Carolina--	225	11	19,064	9,751	4.0	393	84	40	110	17	565	129	251	314	2.57
South Dakota----	144	13	5,795	11,466	3.6	412	84	41	93	54	450	97	192	258	1.68
Tennessee-------	428	11	22,483	9,701	4.1	395	84	37	95	25	496	114	223	273	2.30
Texas-----------	263	11	21,252	10,666	3.7	396	83	49	52	36	531	142	253	278	2.37
Vermont---------	769	11	36,395	11,267	4.0	449	85	38	71	45	551	138	256	295	2.27
Virginia--------	951	12	54,795	11,728	3.8	445	85	46	134	20	616	150	294	322	2.51
Washington------	2	10	84	10,825	4.3	464	--	37	34	40	567	120	219	348	2.03
West Virginia---	187	12	7,946	10,644	3.9	412	85	39	91	30	519	123	248	271	2.33
Total or average	28,237	12	1,229,676	11,744	3.8	449	85	44	102	38	539	127	244	295	2.08
Total or average 2/-----	35,604		1,821,252	11,976	3.8	457									

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[1] Cow-year basis, based on complete individual herd reports.
[2] Based on all data reported in Table 3.

TABLE 5.--Summary of 1964-65 Standard DHIA yearly herd averages, stratified by butterfat pounds [1]

Grouping	Herds	Body weight	Cow-years	Milk	Fat	Fat	Days in milk	Concen-trates fed	Succ. forage fed	Dry forage fed	Value of product	Cost of concen-trates	Feed cost	Income over feed cost	Feed cost per cwt. milk
Lb.	No.	Cwt.	No.	Lb.	Pct.	Lb.	Pct.	Cwt.	Cwt.	Cwt.	$	$	$	$	$
125-174	4	9	73.5	3,825	4.1	156	63	20	24	12	211	63	120	91	3.18
175-224	63	10	57.2	5,286	3.9	207	71	25	47	29	257	76	154	103	2.93
225-274	241	11	51.0	6,507	3.9	255	77	29	54	30	308	83	170	138	2.64
275-324	949	11	49.8	7,799	3.9	304	80	33	65	32	363	93	184	179	2.38
325-374	2,714	11	46.5	9,139	3.9	353	83	36	76	36	413	102	202	211	2.24
375-424	5,555	12	44.4	10,468	3.8	402	84	40	85	39	463	111	217	246	2.09
425-474	7,659	12	43.4	11,749	3.8	450	85	44	93	41	516	122	234	282	2.01
475-524	6,582	12	42.4	13,082	3.8	498	86	47	101	42	580	135	256	324	1.97
525-574	3,291	12	41.2	14,271	3.8	545	87	51	108	43	640	149	277	363	1.95
575-624	970	13	41.9	15,427	3.8	593	87	55	113	44	710	163	299	411	1.95
625-674	178	13	39.8	16,529	3.9	642	88	58	113	47	783	182	328	455	2.00
675-724	23	13	39.5	17,819	3.9	691	88	62	124	47	877	192	352	525	1.98
725-774	7	13	18.7	17,838	4.2	743	91	62	90	56	843	200	324	519	1.82
775-824	1	12	1.7	16,595	4.7	783	91	73	36	114	747	185	329	418	1.98
Total or average	28,237	12	43.5	11,817	3.8	453	85	44	93	40	526	125	238	288	2.05

[1] All groupings and the total or average line are on a herd basis.

TABLE 6.--Summary of 1964-65 Standard DHIA yearly herd averages, stratified by cwt. concentrates fed [1]

Grouping	Herds	Body weight	Cow-years	Milk	Fat	Fat	Days in milk	Concen-trates fed	Succ. forage fed	Dry forage fed	Value of product	Cost of concen-trates	Feed cost	Income over feed cost	Feed cost per cwt. milk
Cwt.	No.	Cwt.	No.	Lb.	Pct.	Lb.	Pct.	Cwt.	Cwt.	Cwt.	$	$	$	$	$
No Rept.	4	10	51.2	9,703	3.7	360	82	--	129	45	506	---	155	351	1.79
Under 5	5	12	38.7	10,735	3.6	391	86	3	107	65	410	21	135	275	1.23
05-14	40	11	39.6	8,611	3.8	329	82	11	88	54	334	36	151	183	1.80
15-24	760	11	44.1	8,748	4.1	357	83	22	72	42	387	63	163	224	1.95
25-34	4,953	11	43.5	10,005	4.0	403	84	31	83	39	451	87	192	259	1.98
35-44	9,796	12	44.0	11,498	3.9	443	85	40	93	40	509	112	225	284	2.00
45-54	8,135	12	42.9	12,659	3.8	476	85	49	99	41	560	140	259	301	2.08
55-64	3,453	12	43.2	13,412	3.7	499	86	59	97	40	601	169	287	314	2.17
65-74	851	12	45.9	13,854	3.7	512	86	68	91	40	626	196	312	314	2.28
75-84	213	13	46.8	14,158	3.7	524	86	78	94	38	663	226	342	321	2.46
85-Up	27	12	42.2	15,033	3.6	546	87	88	78	37	719	266	377	342	2.52
Total or average	28,237	12	43.5	11,817	3.8	453	85	44	93	40	526	125	238	288	2.05

[1] All groupings and the total or average line are on a herd basis.

TABLE 7.--Summary of 1964-65 Standard DHIA yearly herd averages, stratified by feed cost per cwt. milk [1]

Grouping	Herds	Body weight	Cow-years	Milk	Fat	Fat	Days in milk	Concen-trates fed	Succ. forage fed	Dry forage fed	Value of product	Cost of concen-trates	Feed cost	Income over feed cost	Feed cost per cwt. milk
Cents	No.	Cwt.	No.	Lb.	Pct.	Lb.	Pct.	Cwt.	Cwt.	Cwt.	$	$	$	$	$
Under 175	8,678	12	36.6	12,496	3.7	464	86	42	82	45	477	94	183	294	1.47
175-224	9,844	12	43.2	12,044	3.8	460	85	44	93	41	535	126	240	295	1.99
225-274	7,004	12	48.7	11,408	3.9	445	85	46	101	36	569	149	280	289	2.46
275-324	2,184	11	54.1	10,227	4.1	417	84	46	107	35	552	155	299	253	2.93
325-374	421	11	58.1	8,873	4.3	383	82	44	104	34	507	154	305	202	3.44
375-424	83	10	50.3	7,770	4.5	351	81	44	82	34	462	158	305	157	3.93
425-474	18	11	30.4	7,064	4.5	316	79	44	90	36	421	155	315	100	4.47
475-Up	5	10	15.1	6,652	5.2	346	80	38	58	33	447	146	322	125	4.84
Total or average	28,237	12	43.5	11,817	3.8	453	85	44	93	40	526	125	238	288	2.05

[1] All groupings and the total or average line are on a herd basis.

TABLE 8.--Summary of 1964-65 Standard DHIA yearly herd averages by breed, stratified by milk pounds [1/]

Grouping	Herds	Body weight	Cow-years	Milk	Fat	Fat	Days in milk	Concentrates fed	Succ. forage fed	Dry forage fed	Value of product	Cost of concentrates	Feed cost	Income over feed cost	Feed cost per cwt. milk
Lb.	No.	Cwt.	No.	Lb.	Pct.	Lb.	Pct.	Cwt.	Cwt.	Cwt.	$	$	$	$	$
AYRSHIRE															
Under 7,500	13	11	38.2	6,839	4.0	275	77	32	76	24	347	95	185	162	2.68
7,500- 8,499	42	11	37.3	8,128	4.0	328	82	32	62	38	366	96	192	174	2.36
8,500- 9,499	112	11	39.9	9,073	4.1	369	82	34	70	37	430	107	211	219	2.32
9,500-10,499	135	11	38.6	10,007	4.0	405	83	37	75	40	471	116	221	250	2.21
10,500-11,499	116	11	39.7	10,934	4.1	443	84	42	76	42	521	128	239	282	2.18
11,500-12,499	64	11	44.2	11,935	4.0	480	85	44	76	43	585	144	259	326	2.17
12,500-13,499	20	11	48.1	12,857	4.0	509	84	46	82	51	596	148	279	317	2.17
13,500-Up	8	12	26.4	14,238	3.9	561	86	53	84	34	637	167	268	369	1.89
Total or average	510	11	39.9	10,197	4.0	412	83	39	74	40	483	120	227	256	2.24
GUERNSEY															
Under 5,500	12	10	51.0	5,107	4.8	247	74	20	63	33	287	60	160	127	3.13
5,500- 6,499	54	10	67.0	6,072	4.7	287	79	29	61	24	347	90	177	170	2.92
6,500- 7,499	206	10	41.6	7,088	4.8	339	83	31	70	32	376	92	186	190	2.63
7,500- 8,499	409	10	43.8	8,061	4.8	385	85	33	70	34	427	97	195	232	2.41
8,500- 9,499	635	10	42.2	8,989	4.8	431	86	36	74	36	471	103	204	267	2.27
9,500-10,499	511	10	40.8	9,949	4.8	478	87	40	74	37	527	117	221	306	2.23
10,500-11,499	229	11	39.7	10,910	4.7	515	87	42	67	41	569	124	232	337	2.13
11,500-12,499	67	11	38.5	11,887	4.6	544	87	45	70	41	607	136	245	362	2.06
12,500-13,499	14	11	37.5	12,902	4.4	574	88	47	82	48	645	137	258	387	2.00
14,500-Up	4	13	28.4	15,392	3.8	589	87	58	119	40	755	178	314	441	2.04
Total or average	2,141	10	42.4	9,096	4.8	434	85	37	72	36	479	107	209	270	2.32
HOLSTEIN															
Under 6,500	40	11	51.2	5,957	3.7	220	72	27	58	34	277	79	171	105	2.89
6,500- 7,499	94	11	54.5	7,115	3.7	266	78	30	68	32	324	84	176	148	2.48
7,500- 8,499	268	11	54.0	8,088	3.7	300	80	33	80	30	371	95	192	179	2.37
8,500- 9,499	674	12	46.4	9,068	3.7	335	82	35	82	37	399	98	200	199	2.20
9,500-10,499	1,563	12	45.4	10,057	3.7	370	83	38	89	38	437	107	213	224	2.12
10,500-11,499	2,851	12	44.2	11,041	3.7	406	84	41	93	40	475	114	223	252	2.02
11,500-12,499	4,146	12	45.2	12,023	3.7	442	85	44	100	42	513	122	237	276	1.97
12,500-13,499	4,538	12	43.0	12,994	3.7	477	86	47	103	43	557	131	249	308	1.92
13,500-14,499	3,644	12	42.6	13,966	3.7	513	86	49	106	44	603	141	265	338	1.90
14,500-15,499	2,015	13	41.6	14,930	3.7	547	87	52	108	45	646	151	279	367	1.87
15,500-16,499	725	13	42.1	15,918	3.7	582	87	56	108	46	698	164	295	403	1.85
16,500-17,499	207	13	40.5	16,896	3.6	616	88	58	106	48	748	176	314	434	1.86
17,500-18,499	54	13	38.9	17,890	3.6	649	89	62	98	49	800	189	326	474	1.82
18,500-Up	12	13	33.6	18,916	3.7	702	89	69	102	50	891	206	336	555	1.78
Total or average	20,831	12	43.8	12,595	3.7	463	85	45	100	42	543	128	246	297	1.96
JERSEY															
Under 5,500	41	9	39.3	4,918	5.1	249	76	25	32	26	254	70	136	118	2.77
5,500- 6,499	123	9	43.1	6,138	5.1	312	80	29	46	26	322	83	154	168	2.51
6,500- 7,499	290	9	49.6	7,056	5.1	363	84	32	54	29	384	94	177	207	2.51
7,500- 8,499	465	9	44.1	8,012	5.1	412	85	35	54	32	434	103	190	244	2.37
8,500- 9,499	432	9	45.2	8,948	5.1	459	86	38	56	33	483	112	201	282	2.25
9,500-10,499	170	9	45.5	9,895	5.1	500	86	41	56	34	543	131	227	316	2.30
10,500-11,499	47	10	45.3	10,920	4.9	532	86	45	78	32	599	144	249	350	2.28
11,500-Up	14	10	36.7	12,177	4.5	551	88	48	65	42	634	159	270	364	2.22
Total or average	1,582	9	45.3	8,195	5.1	418	85	36	54	31	443	106	193	250	2.37

TABLE 8.--Summary of 1964-65 Standard DHIA yearly herd averages by breed, stratified by milk pounds [1] --Continued

Grouping	Herds	Body weight	Cow-years	Milk	Fat	Fat	Days in milk	Concentrates fed	Succ. forage fed	Dry forage fed	Value of product	Cost of concentrates	Feed cost	Income over feed cost	Feed cost per cwt. milk
Lb.	No.	Cwt.	No.	Lb.	Pct.	Lb.	Pct.	Cwt.	Cwt.	Cwt.	$	$	$	$	$
BROWN SWISS															
Under 7,500	15	12	26.1	6,676	4.0	268	75	30	53	40	266	78	159	107	2.42
7,500- 8,499	30	12	30.0	8,050	4.0	323	80	35	67	47	324	88	181	143	2.24
8,500- 9,499	77	13	31.0	9,016	4.1	367	83	36	72	45	388	95	196	192	2.18
9,500-10,499	124	12	33.5	10,017	4.1	411	84	40	77	45	422	105	210	212	2.10
10,500-11,499	148	13	33.1	10,992	4.1	453	85	43	85	46	467	112	216	251	1.97
11,500-12,499	119	13	31.5	11,952	4.1	490	86	45	88	46	519	121	231	288	1.93
12,500-13,499	73	13	32.9	13,010	4.2	540	87	50	98	46	577	139	255	322	1.96
13,500-14,499	25	13	29.3	13,978	4.1	578	89	53	59	58	590	132	243	347	1.74
14,500-Up	6	14	24.0	15,173	4.1	626	89	53	74	56	667	157	276	391	1.81
Total or average	617	13	32.0	10,887	4.1	447	85	43	81	46	466	113	219	247	2.03
MILKING SHORTHORN															
4,500- 5,499	1	11	34.7	5,398	3.5	188	63	39	17	31	251	109	185	66	3.43
5,500- 6,499	8	12	18.2	5,978	3.9	233	69	26	39	41	215	59	131	84	2.20
6,500- 7,499	11	12	31.6	7,155	3.8	271	77	30	40	44	274	75	164	110	2.30
7,500- 8,499	30	12	22.0	7,984	3.7	299	80	34	43	44	293	77	161	132	2.03
8,500- 9,499	33	12	24.8	8,961	3.8	337	83	34	47	39	342	86	170	172	1.90
9,500-10,499	8	12	35.1	9,809	3.7	363	84	37	51	47	417	95	189	228	1.93
10,500-11,499	9	12	22.8	10,866	3.7	407	85	33	57	41	397	83	178	219	1.64
11,500-12,499	3	12	21.6	12,158	3.7	447	89	38	83	48	475	91	175	300	1.44
12,500-13,499	2	13	27.9	13,070	3.8	491	86	44	133	29	505	100	217	288	1.67
Total or average	105	12	24.9	8,629	3.8	324	81	33	48	42	327	81	167	160	1.98
MIXED BREEDS															
Under 5,500	21	10	68.5	4,900	4.1	200	72	26	36	18	269	77	150	120	3.06
5,500- 6,499	46	10	54.1	6,086	4.2	258	78	30	44	24	319	95	175	144	2.88
6,500- 7,499	112	10	57.7	7,076	4.2	298	82	32	58	24	380	98	187	193	2.65
7,500- 8,499	191	10	54.3	8,042	4.2	339	82	36	58	30	411	107	202	209	2.51
8,500- 9,499	307	11	50.0	9,012	4.2	374	84	37	72	31	454	114	217	237	2.41
9,500-10,499	447	11	47.4	10,008	4.0	402	84	40	77	35	482	119	231	251	2.31
10,500-11,499	443	11	47.3	10,993	3.9	432	85	43	85	37	520	130	248	272	2.25
11,500-12,499	387	11	38.4	11,991	3.9	465	86	46	91	40	561	137	263	298	2.19
12,500-13,499	281	11	38.1	12,968	3.8	498	86	47	96	41	606	146	279	327	2.15
13,500-14,499	150	11	37.5	13,924	3.8	528	87	51	102	41	652	156	293	359	2.10
14,500-15,499	35	11	36.0	14,910	3.8	563	87	54	96	40	670	165	296	374	1.99
15,500-Up	15	12	31.9	15,948	3.7	593	88	54	97	54	740	158	304	435	1.91
Total or average	2,436	11	45.7	10,659	4.0	422	85	42	81	36	512	127	242	270	2.30

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[1] All groupings and the total or average line are on a herd basis.

TABLE 9.--Summary of 1964-65 Owner-Sampler cow-year production, by States [1]

State	Herd records	Cow-years	Cows per herd	Cow-year average production		
				Milk	Fat	
	Number	Number	Number	Pounds	Percent	Pounds
Alabama-------------	8	413	51.6	10,316	3.6	376
Arizona-------------	3	283	9.4	13,495	3.6	489
Arkansas------------	28	1,126	40.2	9,821	3.7	361
Colorado------------	16	668	41.8	11,072	3.7	411
Connecticut---------	64	2,354	36.8	12,103	3.9	472
Delaware------------	15	413	27.5	10,654	4.0	429
Georgia-------------	1	100	100.0	11,728	3.7	439
Idaho---------------	9	128	14.2	10,938	3.8	414
Illinois------------	342	10,662	31.2	11,671	3.7	435
Indiana-------------	189	5,663	30.0	11,740	3.9	456
Iowa----------------	661	16,096	24.4	11,185	3.7	412
Kansas--------------	65	2,081	32.0	10,933	3.8	411
Kentucky------------	16	494	30.9	10,570	3.9	410
Louisiana-----------	7	572	81.7	9,292	3.4	318
Maine---------------	95	3,354	35.3	11,392	3.9	445
Maryland------------	75	3,421	45.6	10,696	3.9	416
Massachusetts-------	67	2,154	32.1	11,171	3.9	434
Michigan------------	1,344	39,558	29.4	12,117	3.7	448
Minnesota-----------	1,211	31,914	26.4	11,310	3.7	413
Mississippi---------	2	159	79.5	10,054	3.7	377
Missouri------------	8	217	27.1	9,000	4.5	406
Montana-------------	26	1,139	43.8	10,981	3.8	421
Nebraska------------	58	2,118	36.5	10,903	3.6	395
New Hampshire-------	43	1,254	29.2	10,364	4.0	418
New Jersey----------	21	836	39.8	11,378	3.9	439
New Mexico----------	1	979	978.5	12,934	3.4	444
New York------------	2,041	73,144	35.8	11,974	3.6	437
North Carolina------	35	1,258	35.9	10,991	3.7	411
North Dakota--------	18	475	26.4	9,296	3.7	346
Ohio----------------	464	12,438	26.8	11,487	3.8	431
Oklahoma------------	16	794	49.6	10,619	3.6	377
Oregon--------------	9	395	43.9	9,156	4.5	412
Pennsylvania--------	1,163	32,759	28.2	11,165	3.9	431
Rhode Island--------	5	193	38.6	8,889	4.1	367
South Carolina------	2	80	40.0	8,191	3.8	315
South Dakota--------	44	1,515	34.4	10,879	3.5	384
Tennessee-----------	1	65	65.0	8,482	4.0	341
Texas---------------	7	382	54.6	11,198	3.8	422
Utah----------------	20	675	33.8	11,646	3.8	438
Vermont-------------	219	7,712	35.2	10,183	4.0	410
Virginia------------	54	1,750	32.4	11,800	3.7	438
Washington----------	25	564	22.6	11,614	4.0	463
West Virginia-------	14	497	35.5	8,692	4.1	359
Wisconsin-----------	9,884	296,216	30.0	11,272	3.7	416
Wyoming-------------	13	540	41.5	10,551	3.5	374
Total or average------------	18,409	559,608	30.4	11,402	3.7	423

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[1] Includes all production data reported.

TABLE 10.--Summary of 1964-65 Owner-Sampler DHIA records, by States [1]

State	Herds	Body weight	Cow-years	Milk	Fat	Fat	Days in milk	Concentrates fed	Succ. forage fed	Dry forage fed	Value of product	Cost of concentrates	Feed cost	Income over feed cost	Feed cost per cwt. milk
	No.	Cwt.	No.	Lb.	Pct.	Lb.	Pct.	Cwt.	Cwt.	Cwt.	$	$	$	$	$
Alabama----------	8	12	413	10,316	3.6	376	85	54	71	20	546	165	256	290	2.48
Arkansas---------	28	11	1,126	9,821	3.7	361	83	42	47	34	448	119	206	242	2.10
Connecticut------	60	12	2,146	12,035	3.9	471	84	50	115	32	667	180	309	358	2.57
Delaware---------	15	11	413	10,654	4.0	429	84	36	111	22	545	106	258	287	2.42
Georgia----------	1	12	100	11,728	3.7	439	85	54	104	19	683	164	279	404	2.38
Illinois---------	188	12	5,491	11,694	3.8	439	83	40	66	46	434	91	182	252	1.56
Indiana----------	57	12	1,638	12,280	3.8	471	85	45	110	37	492	117	223	269	1.82
Iowa-------------	659	12	16,037	11,186	3.7	412	83	43	67	47	379	96	172	207	1.54
Kansas-----------	55	12	1,778	11,062	3.7	412	84	43	95	42	432	114	209	223	1.89
Kentucky---------	16	11	494	10,570	3.9	410	84	45	55	32	447	128	226	221	2.13
Louisiana--------	7	10	572	9,292	3.4	318	81	41	48	16	529	130	232	297	2.50
Maine------------	95	11	3,354	11,392	3.9	445	84	40	72	42	558	143	254	304	2.23
Maryland---------	67	12	3,164	10,717	3.9	414	84	42	116	27	523	126	265	258	2.47
Massachusetts----	67	11	2,154	11,171	3.9	434	84	45	99	39	637	160	297	340	2.65
Minnesota--------	1,100	12	28,919	11,326	3.6	413	83	41	92	48	383	83	166	217	1.46
Mississippi------	2	11	159	10,054	3.7	377	85	46	118	11	484	137	218	266	2.17
Missouri---------	8	10	217	9,000	4.5	406	85	39	32	36	354	96	163	191	1.81
Nebraska---------	23	12	776	10,179	3.7	373	83	38	69	57	373	96	173	200	1.70
New Hampshire----	43	11	1,254	10,364	4.0	418	84	39	46	55	537	140	264	273	2.55
New Jersey-------	20	12	787	11,319	3.8	435	84	38	173	32	597	125	308	289	2.72
New York---------	2,041	12	73,144	11,974	3.6	437	84	39	94	47	526	129	243	283	2.03
North Carolina---	35	12	1,258	10,991	3.7	411	84	47	141	12	614	153	274	340	2.49
North Dakota-----	17	12	447	9,231	3.7	341	81	33	52	47	299	60	113	186	1.23
Ohio-------------	293	12	8,352	11,402	3.8	431	85	41	96	41	472	102	220	252	1.93
Oklahoma---------	16	10	794	10,619	3.6	377	81	49	27	51	469	123	218	251	2.05
Pennsylvania-----	1,158	11	32,483	11,171	3.9	431	84	42	91	43	513	133	267	246	2.39
Rhode Island-----	5	11	193	8,889	4.1	367	80	36	66	30	525	133	268	257	3.02
South Carolina---	2	10	80	8,191	3.8	315	80	33	22	23	458	106	186	272	2.27
South Dakota----	44	12	1,515	10,879	3.5	384	82	40	85	50	397	93	179	218	1.64
Tennessee--------	1	10	65	8,482	4.0	341	83	32	109	38	428	103	258	170	3.04
Texas------------	7	11	382	11,198	3.8	422	85	52	28	24	566	154	243	323	2.17
Vermont----------	158	11	5,814	10,422	4.0	412	83	34	57	47	502	124	233	269	2.24
Virginia---------	54	12	1,750	11,800	3.7	438	85	49	109	20	563	161	298	265	2.53
West Virginia----	5	10	116	10,220	4.0	411	85	32	72	35	494	103	217	277	2.13
Total or average-	6,355	12	197,385	11,470	3.7	427	84	41	89	44	486	119	228	258	1.99
Total or av. [2]--	18,409		559,608	11,402	3.7	423									

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[1] Cow-year basis, based on complete individual herd reports only.
[2] Based on all data reported in Table 9.

TABLE 11.--Summary of 1964-65 Owner-Sampler DHIA yearly herd averages, stratified by butterfat pounds [1]

Grouping	Herds	Body weight	Cow-years	Milk	Fat	Fat	Days in milk	Concentrates fed	Succ. forage fed	Dry forage fed	Value of product	Cost of concentrates	Feed cost	Income over feed cost	Feed cost per cwt. milk
Lb.	No.	Cwt.	No.	Lb.	Pct.	Lb.	Pct.	Cwt.	Cwt.	Cwt.	$	$	$	$	$
175-224	9	11	30.6	5,757	3.7	211	75	20	22	53	227	55	138	89	2.42
225-274	60	11	28.7	6,829	3.8	258	77	26	45	45	269	70	151	118	2.23
275-324	302	11	29.9	8,135	3.7	304	81	30	62	43	328	84	174	154	2.16
325-374	951	11	30.2	9,409	3.8	353	82	35	70	45	379	96	191	188	2.05
375-424	1,752	12	30.8	10,754	3.7	401	83	39	76	46	438	108	210	228	1.96
425-474	1,824	12	31.6	11,970	3.7	448	84	43	84	46	501	123	232	269	1.95
475-524	1,089	12	31.7	13,295	3.7	496	85	47	90	45	565	139	256	309	1.94
525-574	314	12	31.6	14,381	3.8	543	86	51	90	47	632	152	273	359	1.91
575-624	48	12	29.3	15,297	3.9	592	86	54	107	44	686	167	290	396	1.90
625-674	6	11	24.5	15,343	4.1	636	85	50	71	56	654	157	273	381	1.78
Total or average	6,355	12	31.1	11,386	3.7	426	84	41	80	46	474	117	223	251	1.98

[1] All groupings and the total or average line are on a herd basis.

TABLE 12.--Summary of 1964-65 Owner-Sampler DHIA yearly herd averages, stratified by cwt. concentrates fed [1]

Grouping	Herds	Body weight	Cow-years	Milk	Fat	Fat	Days in milk	Concentrates fed	Succ. forage fed	Dry forage fed	Value of product	Cost of concentrates	Feed cost	Income over feed cost	Feed cost per cwt. milk
Cwt.	No.	Cwt.	No.	Lb.	Pct.	Lb.	Pct.	Cwt.	Cwt.	Cwt.	$	$	$	$	$
No Rept.	3	12	19.3	8,611	3.8	329	84	--	96	66	379	---	190	189	2.23
Under 5	1	11	19.6	10,276	3.6	368	83	2	77	65	337	4	87	250	.85
05-14	21	11	31.9	8,030	3.9	314	79	11	88	43	315	36	131	184	1.66
15-24	272	11	29.7	8,963	3.9	346	82	21	67	46	369	63	159	210	1.82
25-34	1,480	11	32.0	10,167	3.8	389	83	31	81	46	428	90	193	235	1.93
35-44	2,377	12	31.6	11,408	3.7	426	84	39	83	46	475	114	222	253	1.97
45-54	1,548	12	30.7	12,316	3.7	456	84	49	79	45	510	138	245	265	2.01
55-64	500	12	28.7	12,953	3.7	475	85	58	73	46	532	161	267	265	2.08
65-74	131	12	27.9	13,155	3.6	480	85	68	68	44	544	187	287	257	2.21
75-84	21	12	24.5	13,136	3.6	473	85	78	36	50	529	199	285	244	2.19
85-Up	1	12	40.3	13,841	3.4	473	85	86	101	29	414	169	243	171	1.76
Total or average	6,355	12	31.1	11,386	3.7	426	84	41	80	46	474	117	223	251	1.98

[1] All groupings and the total or average line are on a herd basis.

TABLE 13.--Summary of 1964-65 Owner-Sampler DHIA yearly herd averages, stratified by feed cost per cwt. milk [1]

Grouping	Herds	Body weight	Cow-years	Milk	Fat	Fat	Days in milk	Concentrates fed	Succ. forage fed	Dry forage fed	Value of product	Cost of concentrates	Feed cost	Income over feed cost	Feed cost per cwt. milk
Cents	No.	Cwt.	No.	Lb.	Pct.	Lb.	Pct.	Cwt.	Cwt.	Cwt.	$	$	$	$	$
Under 175	2,200	12	27.2	11,648	3.7	427	84	40	72	46	416	90	171	245	1.47
175-224	2,355	12	33.6	11,693	3.7	435	84	40	84	46	502	123	232	270	1.99
225-274	1,361	11	32.7	10,967	3.8	422	84	43	84	43	514	141	268	246	2.45
275-324	366	11	31.6	9,977	4.0	397	83	44	89	45	497	147	292	205	2.93
325-374	62	11	29.7	8,647	4.2	359	82	43	84	48	452	151	296	156	3.43
375-424	9	10	28.4	7,833	4.6	361	82	39	87	46	423	143	305	118	3.89
425-474	2	12	27.4	6,628	3.9	257	81	36	73	49	343	130	291	52	4.39
Total or average	6,355	12	31.1	11,386	3.7	426	84	41	80	46	474	117	223	251	1.98

[1] All groupings and the total or average line are on a herd basis.

TABLE 14.--Summary of 1964-65 Owner-Sampler DHIA yearly herd averages by breed, stratified by milk pounds [1/]

Grouping	Herds	Body weight	Cow-years	Milk	Fat	Fat	Days in milk	Concentrates fed	Succ. forage fed	Dry forage fed	Value of product	Cost of concentrates	Feed cost	Income over feed cost	Feed cost per cwt. milk
Lb.	No.	Cwt.	No.	Lb.	Pct.	Lb.	Pct.	Cwt.	Cwt.	Cwt.	$	$	$	$	$
AYRSHIRE															
Under 7,500	4	11	29.4	5,989	3.5	208	75	20	27	45	279	54	139	141	2.29
7,500- 8,499	5	11	25.6	7,988	3.9	315	77	32	22	43	345	92	178	167	2.23
8,500- 9,499	17	11	29.4	9,077	4.0	362	82	33	55	43	435	111	212	223	2.33
9,500-10,499	24	11	31.3	9,922	4.0	396	83	35	68	41	430	110	201	229	2.03
10,500-11,499	16	11	24.5	10,962	4.0	439	84	38	63	40	495	120	222	273	2.03
11,500-Up	4	11	30.1	12,935	3.9	499	87	43	109	53	575	115	254	322	1.99
Total or average	70	11	28.7	9,764	4.0	388	82	35	60	42	440	108	206	234	2.13
GUERNSEY															
Under 6,500	10	10	19.0	5,929	4.6	272	79	26	11	48	252	66	140	111	2.37
6,500- 7,499	46	10	26.1	7,084	4.7	332	83	27	57	43	330	75	157	173	2.22
7,500- 8,499	86	10	27.0	8,037	4.7	380	84	33	60	41	378	90	179	199	2.23
8,500- 9,499	96	10	30.3	8,945	4.7	418	85	35	64	38	432	94	184	248	2.06
9,500-10,499	42	10	30.8	9,982	4.5	445	85	38	67	41	462	109	199	263	1.99
10,500-11,499	20	11	28.5	11,101	4.3	473	85	44	65	45	522	137	245	277	2.21
11,500-Up	12	11	27.1	12,598	3.9	496	85	45	73	42	545	135	235	310	1.88
Total or average	312	10	28.2	8,742	4.6	400	84	34	61	41	410	95	185	225	2.13
HOLSTEIN															
5,500- 6,499	6	12	27.9	6,103	3.6	219	76	21	11	64	232	66	145	87	2.39
6,500- 7,499	35	11	29.2	7,094	3.7	264	78	26	45	44	288	74	153	135	2.17
7,500- 8,499	101	11	31.9	8,092	3.7	298	80	30	67	43	321	82	171	150	2.11
8,500- 9,499	272	12	29.9	9,043	3.7	333	81	33	69	46	358	91	185	173	2.05
9,500-10,499	616	12	31.6	10,040	3.6	366	82	36	78	45	399	99	197	202	1.96
10,500-11,499	961	12	31.6	11,023	3.6	402	83	39	78	47	444	109	211	233	1.91
11,500-12,499	1,168	12	32.6	11,995	3.6	436	84	42	88	47	488	118	227	261	1.89
12,500-13,499	950	12	32.9	12,954	3.6	472	85	45	92	47	531	130	243	288	1.88
13,500-14,499	551	12	32.6	13,947	3.6	504	85	49	89	47	575	141	254	321	1.82
14,500-15,499	216	12	31.2	14,898	3.6	536	85	52	89	49	620	153	268	352	1.80
15,500-16,499	43	12	31.9	15,891	3.6	575	87	54	83	52	656	160	277	379	1.74
16,500-17,499	5	13	38.6	16,676	3.7	618	86	57	110	49	736	193	326	410	1.96
Total or average	4,924	12	32.1	11,845	3.6	431	84	42	84	47	481	118	224	257	1.90
JERSEY															
Under 5,500	5	9	15.9	4,851	5.5	267	80	25	37	38	243	63	136	107	2.81
5,500- 6,499	16	9	25.4	6,084	5.0	307	81	24	28	37	292	63	127	165	2.10
6,500- 7,499	54	9	26.6	7,099	5.1	359	83	32	39	37	356	94	170	186	2.40
7,500- 8,499	61	9	28.6	8,073	5.0	405	84	33	48	40	427	106	195	232	2.42
8,500- 9,499	46	9	30.1	8,979	5.0	450	85	39	48	36	479	128	212	267	2.36
9,500-10,499	24	9	26.4	9,912	4.8	479	85	41	56	41	523	135	228	295	2.30
10,500-11,499	8	10	28.6	11,081	4.6	507	85	49	77	37	554	146	245	309	2.21
11,500-Up	4	10	34.8	12,088	4.3	519	85	46	32	51	544	147	248	296	2.06
Total or average	218	9	27.8	8,190	5.0	407	84	35	46	38	424	109	193	231	2.36
BROWN SWISS															
6,500- 7,499	3	13	22.2	7,359	4.0	294	77	32	26	59	303	80	172	131	2.34
7,500- 8,499	12	12	20.7	7,957	4.0	322	81	35	47	49	315	89	171	144	2.15
8,500- 9,499	15	12	22.5	9,023	4.1	371	82	34	56	53	338	79	157	181	1.74
9,500-10,499	14	12	23.8	10,014	4.0	405	84	37	65	51	422	99	195	227	1.95
10,500-11,499	21	12	24.8	10,974	4.0	439	85	41	63	51	430	108	198	232	1.81
11,500-12,499	10	12	21.8	11,765	4.0	467	84	41	79	47	458	108	210	248	1.79
12,500-13,499	4	13	22.6	13,054	3.9	513	86	39	99	69	481	91	195	286	1.50
13,500-14,499	4	13	22.6	13,811	4.0	555	88	53	60	59	612	136	251	361	1.82
Total or average	83	12	23.0	10,225	4.0	411	84	38	62	52	405	98	189	216	1.87
MILKING SHORTHORN															
6,500- 7,499	1	11	10.5	6,638	3.7	246	81	42	9	47	238	84	162	76	2.44
8,500- 9,499	1	12	27.3	8,586	3.3	282	72	23	104	18	260	52	109	151	1.27
9,500-10,499	3	11	26.2	9,885	3.8	377	86	29	82	42	342	77	157	185	1.58
Total or average	5	11	23.3	8,976	3.7	332	82	31	72	38	305	73	148	157	1.69
MIXED BREEDS															
Under 6,500	10	11	30.2	6,027	4.3	261	81	27	45	40	265	76	161	104	2.67
6,500- 7,499	18	11	28.4	7,102	4.2	299	81	28	54	35	324	78	172	152	2.44
7,500- 8,499	56	11	27.7	7,996	4.1	326	82	33	65	37	356	99	206	150	2.58
8,500- 9,499	108	11	25.6	9,034	4.0	364	83	35	62	43	400	107	213	187	2.36
9,500-10,499	147	11	26.8	10,020	3.9	390	84	38	71	44	441	116	230	211	2.29
10,500-11,499	166	11	28.4	11,006	3.9	428	84	43	84	42	491	127	246	245	2.24
11,500-12,499	107	11	28.3	11,990	3.8	461	85	48	82	44	543	142	269	274	2.24
12,500-13,499	87	11	28.9	12,960	3.8	490	85	49	88	42	573	152	286	287	2.21
13,500-14,499	29	11	27.5	14,047	3.8	528	85	52	73	49	596	149	276	320	1.96
14,500-15,499	12	11	24.0	14,840	3.8	566	85	54	69	46	688	173	313	375	2.11
15,500-16,499	2	11	25.3	15,597	3.8	598	83	58	111	37	666	187	305	361	1.95
Total or average	742	11	27.6	10,699	3.9	417	84	42	75	42	476	125	242	234	2.29

1/ All groupings and the total or average line are on a herd basis.

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Dairy-Herd-Improvement Letter
ARS-44-164
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DHIA FACTORS FOR PROJECTING INCOMPLETE RECORDS TO 305 DAYS [1]

by B. T. McDaniel, R. H. Miller, and E. L. Corley

The DHIA 305-day projection factors shown on the following pages were derived and are being used by USDA to project incomplete DHIA lactation records to a 305-day basis. This procedure became effective July 1, 1965, and is used in USDA sire and cow evaluation to standardize records for days in milk.

These DHIA projection factors are based on a total of 162,191 DHIA lactations and are a result of the combination of previously reported milk factors from Michigan (3) [2] and DHIA test-day data made available by the Iowa Processing Center. An earlier set of projection factors from Michigan (4) was also used as an aid in developing milk-fat factors for the Guernsey and Holstein breeds.

Only incomplete records are projected or extended to a

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[1] Some of the material used in developing these factors were from Michigan DHIA data and were provided by Dr. L. D. McGilliard. The authors also wish to acknowledge his advice and counsel on methodology used in developing these projection factors. The remaining data used were provided by the Iowa Processing Center.

[2] Underscored figures in parentheses identify references listed on page 3.

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305-day basis by the USDA. They are defined as those reported to the USDA with CAR (conditions affecting records) codes of 2, 3, and 8, with days in milk less than 305 and greater than 14. Records reported with CAR codes of 0, 4, 5, 6, and 7 are considered as complete, are not projected, and are used in sire and cow evaluations if days in milk range from 180 to 305 days. They are not used if days in milk are less than 180. Records reported with CAR codes of 1 and 9 are currently deleted from sire and cow evaluations. Future plans by cooperating States and USDA are to exclude records made and reported with production estimated for 2 or more months, regardless of CAR code.

The CAR codes currently used and followed by USDA are as follows:

Code	Interpretation
Zero	Dry or 305-day record with no other conditions affecting it
1	Estimated (incomplete or missing first part of lactation)
2	Sold, presumably for dairy purposes
3	Died or sold for beef
4	Injury
5	Mastitis
6	Ketosis
7	Other sickness
8	Record terminated by abortion
9	Nurse cow

Research has shown that projection factors vary substantially between breeds, between age groups, and between milk and fat within breeds. These variations are large enough to justify independent sets of factors.

Separate tables of factors are shown for Ayrshire, Guernsey, Holstein, Jersey, and Brown Swiss cows, while a combined set is shown for Milking Shorthorn, Red Dane, Red Poll, and mixed-breed cows.

Factors were derived separately for cows less than 36 months old and for cows 36 months old and older, since research (1, 2, and 5) has shown that age is the most important cause of within-breed variation in projection factors. The decision to use only two age groups was based on findings that the major age differences lie between cows less than 36 months old and older cows (1, 2). Although there are significant variations due to age among the older cows, such differences are minor compared to the difference between cows less than 36 months old and any group of older cows.

Milk and milk-fat factors are shown separately for each breed and age group. Factors for fat are generally higher, especially in the later stages of the 305-day lactation. Season of calving was not considered in establishing these factors.

(1) Lamb, R. C., and L. D. McGilliard. 1960. Variables affecting ratio factors for estimating 305-day production from part lactations. Jour. of Dairy Sci., 43:519.

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(3) McGilliard, L. D. 1964. Ratios for extending incomplete lactations to 305 days. Dept. of Dairy, Mich. State Univ.

(4) McGilliard, L. D. 1961. Ratio factors for extending incomplete lactations to 305 days. Dept. of Dairy, Mich. State Univ.

(5) Van Vleck, L. D., and C. R. Henderson. 1961. Ratio factors for adjusting monthly test-day data for age and season of calving and ratio factors for extending part lactation records. Jour. of Dairy Sci., 44:1093.

DHIA 305-Day Projection Factors [1]

AYRSHIRE

Days in Milk	<36 Mo.of Age		≥36 Mo.of Age		Days in Milk	<36 Mo.of Age		≥36 Mo.of Age	
	Milk	Fat	Milk	Fat		Milk	Fat	Milk	Fat
15	16.31	16.57	14.11	13.46	63	3.88	4.00	3.39	3.36
16	15.29	15.53	13.23	12.62	64	3.82	3.94	3.34	3.31
17	14.39	14.61	12.45	11.88	65	3.76	3.88	3.29	3.26
18	13.60	13.81	11.76	11.22	66	3.70	3.83	3.24	3.22
19	12.88	13.08	11.14	10.63	67	3.65	3.77	3.20	3.18
20	12.24	12.43	10.58	10.10	68	3.60	3.72	3.15	3.13
21	11.65	11.84	10.08	9.63	69	3.55	3.66	3.11	3.09
22	11.12	11.30	9.62	9.19	70	3.50	3.61	3.07	3.05
23	10.64	10.81	9.20	8.80	71	3.45	3.56	3.03	3.01
24	10.19	10.36	8.82	8.44	72	3.40	3.52	2.99	2.97
25	9.78	9.95	8.47	8.11	73	3.36	3.47	2.95	2.94
26	9.41	9.57	8.14	7.80	74	3.32	3.43	2.91	2.90
27	9.05	9.21	7.84	7.51	75	3.27	3.38	2.88	2.87
28	8.73	8.89	7.57	7.26	76	3.23	3.34	2.84	2.83
29	8.43	8.59	7.30	7.01	77	3.19	3.30	2.81	2.80
30	8.15	8.30	7.06	6.78	78	3.15	3.26	2.77	2.77
31	7.89	8.04	6.83	6.57	79	3.11	3.22	2.74	2.74
32	7.64	7.79	6.62	6.37	80	3.08	3.18	2.71	2.71
33	7.40	7.55	6.42	6.18	81	3.04	3.14	2.68	2.68
34	7.19	7.33	6.23	6.01	82	3.00	3.11	2.65	2.65
35	6.98	7.13	6.05	5.84	83	2.97	3.07	2.62	2.62
36	6.78	6.93	5.88	5.69	84	2.93	3.03	2.59	2.59
37	6.60	6.75	5.73	5.54	85	2.90	3.00	2.56	2.57
38	6.43	6.57	5.58	5.40	86	2.87	2.96	2.53	2.54
39	6.26	6.40	5.44	5.27	87	2.84	2.93	2.51	2.52
40	6.10	6.24	5.30	5.14	88	2.81	2.90	2.48	2.49
41	5.95	6.10	5.17	5.02	89	2.78	2.87	2.46	2.47
42	5.81	5.95	5.05	4.91	90	2.75	2.84	2.43	2.44
43	5.68	5.81	4.93	4.80	91	2.72	2.81	2.41	2.42
44	5.54	5.68	4.82	4.70	92	2.69	2.79	2.39	2.40
45	5.42	5.56	4.71	4.60	93	2.67	2.76	2.36	2.38
46	5.30	5.44	4.61	4.50	94	2.64	2.73	2.34	2.35
47	5.19	5.33	4.51	4.41	95	2.62	2.71	2.32	2.33
48	5.08	5.22	4.42	4.33	96	2.59	2.68	2.30	2.31
49	4.97	5.12	4.33	4.24	97	2.57	2.65	2.28	2.29
50	4.88	5.02	4.25	4.16	98	2.54	2.63	2.26	2.27
51	4.78	4.92	4.16	4.08	99	2.52	2.60	2.24	2.25
52	4.69	4.83	4.08	4.01	100	2.49	2.58	2.22	2.23
53	4.60	4.74	4.01	3.94	101	2.47	2.55	2.20	2.21
54	4.52	4.65	3.94	3.88	102	2.45	2.53	2.18	2.19
55	4.43	4.57	3.86	3.81	103	2.43	2.51	2.16	2.17
56	4.35	4.49	3.79	3.74	104	2.40	2.48	2.14	2.16
57	4.27	4.41	3.73	3.68	105	2.38	2.46	2.12	2.14
58	4.20	4.34	3.67	3.62	106	2.36	2.44	2.11	2.13
59	4.14	4.27	3.61	3.57	107	2.34	2.42	2.09	2.11
60	4.07	4.20	3.55	3.51	108	2.32	2.40	2.07	2.09
61	4.00	4.13	3.50	3.46	109	2.30	2.38	2.05	2.07
62	3.94	4.07	3.44	3.41	110	2.28	2.36	2.04	2.06

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[1] Factors for less than 36 months were based on 509 records, and factors for cows greater than or equal to 36 months were based on 1,366 records.

DHIA 305-Day Projection Factors [1/]--Continued

AYRSHIRE

Days in Milk	<36 Mo.of Age		≥36 Mo.of Age	
	Milk	Fat	Milk	Fat
111	2.26	2.34	2.02	2.04
112	2.24	2.32	2.01	2.03
113	2.23	2.30	1.99	2.01
114	2.21	2.29	1.98	2.00
115	2.19	2.27	1.96	1.98
116	2.18	2.25	1.95	1.97
117	2.16	2.23	1.94	1.96
118	2.14	2.22	1.92	1.94
119	2.13	2.20	1.91	1.93
120	2.11	2.18	1.89	1.91
121	2.10	2.16	1.88	1.90
122	2.08	2.15	1.87	1.89
123	2.07	2.13	1.86	1.88
124	2.05	2.12	1.84	1.86
125	2.04	2.10	1.83	1.85
126	2.02	2.09	1.82	1.84
127	2.01	2.07	1.81	1.83
128	1.99	2.05	1.80	1.82
129	1.98	2.04	1.78	1.80
130	1.97	2.03	1.77	1.79
131	1.95	2.01	1.76	1.78
132	1.94	2.00	1.75	1.77
133	1.93	1.99	1.74	1.76
134	1.92	1.98	1.73	1.75
135	1.90	1.96	1.72	1.74
136	1.89	1.95	1.71	1.73
137	1.88	1.94	1.70	1.72
138	1.86	1.92	1.69	1.71
139	1.85	1.91	1.68	1.70
140	1.84	1.90	1.67	1.69
141	1.83	1.89	1.66	1.68
142	1.82	1.88	1.65	1.67
143	1.80	1.86	1.64	1.66
144	1.79	1.85	1.63	1.65
145	1.78	1.84	1.62	1.64
146	1.77	1.83	1.62	1.64
147	1.76	1.82	1.61	1.63
148	1.75	1.81	1.60	1.62
149	1.74	1.80	1.59	1.61
150	1.73	1.79	1.58	1.60
151	1.72	1.77	1.57	1.59
152	1.71	1.76	1.56	1.58
153	1.70	1.75	1.55	1.57
154	1.70	1.74	1.55	1.57
155	1.69	1.73	1.54	1.56
156	1.68	1.72	1.53	1.55
157	1.67	1.71	1.52	1.54
158	1.66	1.70	1.51	1.53
159	1.65	1.69	1.51	1.53
160	1.64	1.68	1.50	1.52
161	1.63	1.67	1.49	1.51
162	1.62	1.67	1.48	1.50
163	1.61	1.66	1.48	1.50
164	1.60	1.65	1.47	1.49
165	1.59	1.64	1.46	1.48
166	1.58	1.63	1.45	1.47
167	1.58	1.62	1.45	1.47
168	1.57	1.61	1.44	1.46
169	1.56	1.60	1.44	1.46
170	1.55	1.59	1.43	1.45
171	1.54	1.59	1.42	1.44
172	1.54	1.58	1.42	1.44
173	1.53	1.57	1.41	1.43
174	1.52	1.56	1.41	1.43
175	1.52	1.55	1.40	1.42
176	1.51	1.55	1.39	1.41
177	1.50	1.54	1.39	1.41
178	1.49	1.53	1.38	1.40
179	1.49	1.53	1.38	1.40
180	1.48	1.52	1.37	1.39
181	1.47	1.51	1.37	1.39
182	1.47	1.51	1.36	1.38
183	1.46	1.50	1.36	1.37
184	1.45	1.49	1.35	1.37
185	1.45	1.49	1.34	1.36
186	1.44	1.48	1.34	1.36
187	1.44	1.47	1.33	1.35
188	1.43	1.47	1.33	1.35
189	1.42	1.46	1.32	1.34
190	1.42	1.45	1.32	1.34
191	1.41	1.45	1.31	1.33
192	1.41	1.44	1.31	1.33
193	1.40	1.43	1.30	1.32
194	1.39	1.43	1.30	1.32
195	1.39	1.42	1.29	1.31
196	1.38	1.42	1.29	1.31
197	1.38	1.41	1.28	1.30
198	1.37	1.40	1.28	1.30
199	1.37	1.40	1.27	1.29
200	1.36	1.39	1.27	1.29
201	1.36	1.39	1.26	1.28
202	1.35	1.38	1.26	1.28
203	1.35	1.37	1.25	1.27
204	1.34	1.37	1.25	1.27
205	1.33	1.36	1.25	1.26
206	1.33	1.36	1.24	1.26
207	1.32	1.35	1.24	1.26
208	1.32	1.34	1.23	1.25
209	1.31	1.34	1.23	1.25
210	1.31	1.33	1.23	1.24
211	1.30	1.33	1.22	1.24
212	1.30	1.32	1.22	1.23

[1/] Factors for less than 36 months were based on 509 records, and factors for cows greater than or equal to 36 months were based on 1,366 records.

DHIA 305-Day Projection Factors 1/ --Continued

AYRSHIRE

Days in Milk	<36 Mo.of Age		≥36 Mo.of Age		Days in Milk	<36 Mo.of Age		≥36 Mo.of Age	
	Milk	Fat	Milk	Fat		Milk	Fat	Milk	Fat
213	1.30	1.32	1.21	1.23	259	1.11	1.12	1.08	1.08
214	1.29	1.31	1.21	1.23	260	1.11	1.12	1.08	1.08
215	1.29	1.31	1.21	1.22	261	1.11	1.12	1.08	1.08
216	1.28	1.30	1.20	1.22	262	1.10	1.11	1.07	1.08
217	1.28	1.30	1.20	1.22	263	1.10	1.11	1.07	1.07
218	1.27	1.29	1.20	1.21	264	1.10	1.11	1.07	1.07
219	1.27	1.29	1.19	1.21	265	1.09	1.10	1.07	1.07
220	1.26	1.28	1.19	1.20	266	1.09	1.10	1.07	1.07
221	1.26	1.28	1.19	1.20	267	1.09	1.10	1.06	1.06
222	1.25	1.27	1.18	1.20	268	1.09	1.09	1.06	1.06
223	1.25	1.27	1.18	1.19	269	1.08	1.09	1.06	1.06
224	1.24	1.26	1.18	1.19	270	1.08	1.09	1.06	1.06
225	1.24	1.26	1.17	1.19	271	1.08	1.09	1.06	1.06
226	1.23	1.25	1.17	1.18	272	1.08	1.08	1.05	1.05
227	1.23	1.25	1.17	1.18	273	1.07	1.08	1.05	1.05
228	1.23	1.25	1.16	1.17	274	1.07	1.08	1.05	1.05
229	1.22	1.24	1.16	1.17	275	1.07	1.07	1.05	1.05
230	1.22	1.24	1.16	1.17	276	1.06	1.07	1.05	1.05
231	1.21	1.23	1.15	1.17	277	1.06	1.07	1.04	1.05
232	1.21	1.23	1.15	1.16	278	1.06	1.06	1.04	1.04
233	1.20	1.22	1.15	1.16	279	1.06	1.06	1.04	1.04
234	1.20	1.22	1.14	1.15	280	1.06	1.06	1.04	1.04
235	1.20	1.22	1.14	1.15	281	1.05	1.06	1.04	1.04
236	1.19	1.21	1.14	1.15	282	1.05	1.05	1.04	1.04
237	1.19	1.21	1.14	1.15	283	1.05	1.05	1.03	1.03
238	1.18	1.20	1.13	1.14	284	1.05	1.05	1.03	1.03
239	1.18	1.20	1.13	1.14	285	1.04	1.05	1.03	1.03
240	1.18	1.20	1.13	1.14	286	1.04	1.04	1.03	1.03
241	1.17	1.19	1.12	1.13	287	1.04	1.04	1.03	1.03
242	1.17	1.19	1.12	1.13	288	1.04	1.04	1.03	1.03
243	1.17	1.19	1.12	1.13	289	1.04	1.04	1.02	1.02
244	1.16	1.18	1.12	1.12	290	1.03	1.03	1.02	1.02
245	1.16	1.18	1.11	1.12	291	1.03	1.03	1.02	1.02
246	1.15	1.17	1.11	1.12	292	1.03	1.03	1.02	1.02
247	1.15	1.17	1.11	1.11	293	1.03	1.03	1.02	1.02
248	1.15	1.16	1.11	1.11	294	1.02	1.02	1.02	1.02
249	1.14	1.16	1.10	1.11	295	1.02	1.02	1.02	1.02
250	1.14	1.16	1.10	1.11	296	1.02	1.02	1.02	1.02
251	1.14	1.15	1.10	1.10	297	1.02	1.02	1.01	1.01
252	1.13	1.15	1.10	1.10	298	1.02	1.02	1.01	1.01
253	1.13	1.15	1.09	1.10	299	1.01	1.01	1.01	1.01
254	1.13	1.14	1.09	1.10	300	1.01	1.01	1.01	1.01
255	1.12	1.14	1.09	1.09	301	1.01	1.01	1.01	1.01
256	1.12	1.13	1.09	1.09	302	1.01	1.01	1.00	1.00
257	1.12	1.13	1.08	1.09	303	1.00	1.00	1.00	1.00
258	1.11	1.13	1.08	1.08	304	1.00	1.00	1.00	1.00

1/ Factors for less than 36 months were based on 509 records, and factors for cows greater than or equal to 36 months were based on 1,366 records.

DHIA 305-Day Projection Factors [2]--Continued

GUERNSEY

Days in Milk	<36 Mo.of Age		≥36 Mo.of Age	
	Milk	Fat	Milk	Fat
15	15.73	16.98	14.07	14.39
16	14.75	15.91	13.19	13.49
17	13.88	14.97	12.41	12.69
18	13.11	14.15	11.72	12.00
19	12.42	13.41	11.10	11.36
20	11.80	12.73	10.55	10.80
21	11.24	12.13	10.05	10.29
22	10.73	11.58	9.60	9.82
23	10.27	11.08	9.18	9.40
24	9.84	10.62	8.80	9.02
25	9.45	10.20	8.46	8.66
26	9.09	9.81	8.13	8.33
27	8.76	9.45	7.83	8.03
28	8.44	9.11	7.56	7.75
29	8.15	8.80	7.30	7.49
30	7.89	8.51	7.06	7.25
31	7.64	8.24	6.84	7.01
32	7.40	7.98	6.63	6.80
33	7.17	7.74	6.43	6.60
34	6.97	7.52	6.24	6.41
35	6.77	7.31	6.07	6.24
36	6.59	7.10	5.90	6.07
37	6.41	6.91	5.75	5.91
38	6.25	6.74	5.60	5.77
39	6.09	6.57	5.46	5.62
40	5.93	6.40	5.32	5.48
41	5.80	6.25	5.20	5.36
42	5.66	6.10	5.08	5.24
43	5.53	5.96	4.96	5.12
44	5.41	5.83	4.85	5.01
45	5.29	5.71	4.75	4.90
46	5.18	5.58	4.65	4.80
47	5.07	5.46	4.55	4.70
48	4.97	5.35	4.46	4.61
49	4.87	5.25	4.37	4.52
50	4.77	5.14	4.29	4.44
51	4.68	5.04	4.21	4.36
52	4.59	4.95	4.13	4.28
53	4.51	4.86	4.05	4.20
54	4.43	4.77	3.98	4.12
55	4.35	4.69	3.91	4.05
56	4.27	4.61	3.85	3.98
57	4.20	4.53	3.78	3.92
58	4.13	4.45	3.72	3.86
59	4.06	4.38	3.66	3.80
60	4.00	4.31	3.61	3.74
61	3.94	4.24	3.55	3.68
62	3.88	4.17	3.50	3.63
63	3.82	4.11	3.45	3.58
64	3.76	4.05	3.39	3.52
65	3.71	3.99	3.34	3.47
66	3.66	3.93	3.30	3.42
67	3.60	3.87	3.26	3.38
68	3.55	3.82	3.21	3.33
69	3.50	3.76	3.17	3.29
70	3.45	3.71	3.12	3.24
71	3.41	3.67	3.08	3.20
72	3.37	3.62	3.04	3.16
73	3.33	3.57	3.00	3.12
74	3.28	3.52	2.97	3.08
75	3.24	3.48	2.93	3.05
76	3.20	3.44	2.90	3.01
77	3.16	3.39	2.86	2.98
78	3.12	3.35	2.83	2.94
79	3.09	3.31	2.80	2.91
80	3.05	3.27	2.77	2.87
81	3.02	3.24	2.74	2.84
82	2.99	3.20	2.71	2.81
83	2.95	3.16	2.68	2.78
84	2.92	3.12	2.65	2.75
85	2.89	3.09	2.62	2.73
86	2.86	3.06	2.59	2.70
87	2.83	3.03	2.57	2.67
88	2.80	2.99	2.54	2.64
89	2.77	2.96	2.52	2.61
90	2.74	2.93	2.49	2.58
91	2.72	2.90	2.47	2.56
92	2.69	2.87	2.44	2.54
93	2.67	2.85	2.42	2.51
94	2.64	2.82	2.40	2.49
95	2.61	2.79	2.37	2.46
96	2.59	2.76	2.35	2.44
97	2.56	2.73	2.33	2.42
98	2.54	2.71	2.31	2.40
99	2.51	2.68	2.29	2.38
100	2.49	2.65	2.27	2.36
101	2.47	2.63	2.25	2.34
102	2.45	2.61	2.23	2.32
103	2.43	2.59	2.21	2.30
104	2.41	2.57	2.19	2.28
105	2.39	2.54	2.17	2.26
106	2.37	2.52	2.16	2.24
107	2.35	2.50	2.14	2.22
108	2.33	2.48	2.12	2.20
109	2.31	2.46	2.10	2.18
110	2.29	2.44	2.09	2.17

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[2] Factors for less than 36 months were based on 3,667 records, and factors for cows greater than or equal to 36 months were based on 10,422 records.

DHIA 305-Day Projection Factors[2]--Continued

GUERNSEY

Days in	<36 Mo.of Age		≥36 Mo.of Age		Days in	<36 Mo.of Age		≥36 Mo.of Age	
Milk	Milk	Fat	Milk	Fat	Milk	Milk	Fat	Milk	Fat
111	2.27	2.42	2.07	2.15	162	1.64	1.71	1.52	1.57
112	2.25	2.39	2.06	2.14	163	1.63	1.70	1.51	1.56
113	2.24	2.37	2.04	2.12	164	1.62	1.70	1.50	1.55
114	2.22	2.35	2.03	2.10	165	1.62	1.69	1.50	1.54
115	2.20	2.33	2.01	2.09	166	1.61	1.68	1.49	1.53
116	2.19	2.32	2.00	2.07	167	1.60	1.67	1.48	1.53
117	2.17	2.30	1.98	2.06	168	1.59	1.66	1.48	1.52
118	2.15	2.28	1.97	2.04	169	1.58	1.65	1.47	1.51
119	2.14	2.26	1.95	2.02	170	1.58	1.64	1.46	1.50
120	2.12	2.25	1.94	2.01	171	1.57	1.63	1.46	1.50
121	2.11	2.23	1.93	2.00	172	1.56	1.62	1.45	1.49
122	2.09	2.22	1.91	1.98	173	1.55	1.61	1.44	1.48
123	2.08	2.20	1.90	1.97	174	1.55	1.61	1.44	1.48
124	2.06	2.18	1.89	1.96	175	1.54	1.60	1.43	1.47
125	2.05	2.17	1.87	1.94	176	1.53	1.59	1.43	1.47
126	2.03	2.15	1.86	1.93	177	1.52	1.58	1.42	1.46
127	2.02	2.14	1.85	1.92	178	1.51	1.57	1.41	1.45
128	2.01	2.12	1.84	1.90	179	1.51	1.57	1.41	1.45
129	1.99	2.10	1.83	1.89	180	1.50	1.56	1.40	1.44
130	1.98	2.09	1.82	1.88	181	1.49	1.55	1.40	1.43
131	1.96	2.07	1.81	1.87	182	1.48	1.54	1.39	1.43
132	1.95	2.06	1.79	1.85	183	1.48	1.54	1.38	1.42
133	1.94	2.05	1.78	1.84	184	1.47	1.53	1.38	1.41
134	1.92	2.03	1.77	1.83	185	1.46	1.52	1.37	1.41
135	1.91	2.02	1.76	1.82	186	1.46	1.51	1.37	1.40
136	1.90	2.01	1.75	1.81	187	1.45	1.51	1.36	1.40
137	1.89	1.99	1.74	1.80	188	1.44	1.50	1.35	1.39
138	1.88	1.98	1.73	1.79	189	1.44	1.49	1.35	1.38
139	1.87	1.97	1.72	1.78	190	1.43	1.48	1.34	1.38
140	1.86	1.96	1.71	1.77	191	1.42	1.48	1.34	1.37
141	1.85	1.94	1.70	1.76	192	1.42	1.47	1.33	1.37
142	1.83	1.93	1.69	1.75	193	1.41	1.46	1.33	1.36
143	1.82	1.92	1.68	1.74	194	1.41	1.46	1.32	1.35
144	1.81	1.91	1.67	1.73	195	1.40	1.45	1.32	1.35
145	1.80	1.89	1.66	1.71	196	1.40	1.44	1.31	1.34
146	1.79	1.88	1.65	1.71	197	1.39	1.44	1.31	1.34
147	1.78	1.87	1.64	1.69	198	1.39	1.43	1.30	1.33
148	1.77	1.86	1.63	1.68	199	1.38	1.43	1.30	1.33
149	1.76	1.84	1.62	1.67	200	1.37	1.42	1.29	1.32
150	1.75	1.83	1.61	1.66	201	1.37	1.42	1.29	1.32
151	1.74	1.82	1.61	1.66	202	1.36	1.41	1.29	1.31
152	1.73	1.81	1.60	1.65	203	1.36	1.40	1.28	1.31
153	1.72	1.80	1.59	1.64	204	1.35	1.39	1.28	1.30
154	1.71	1.79	1.58	1.63	205	1.35	1.39	1.27	1.30
155	1.70	1.78	1.57	1.62	206	1.34	1.38	1.27	1.29
156	1.69	1.77	1.57	1.62	207	1.34	1.38	1.26	1.29
157	1.68	1.76	1.56	1.61	208	1.33	1.37	1.26	1.28
158	1.67	1.75	1.55	1.60	209	1.33	1.37	1.25	1.28
159	1.67	1.74	1.54	1.59	210	1.32	1.36	1.25	1.27
160	1.66	1.73	1.53	1.58	211	1.32	1.35	1.25	1.27
161	1.65	1.72	1.53	1.58	212	1.31	1.35	1.24	1.27

2/ Factors for less than 36 months were based on 3,667 records, and factors for cows greater than or equal to 36 months were based on 10,422 records.

DHIA 305-Day Projection Factors [2/]--Continued

GUERNSEY

Days in	<36 Mo.of Age		≥36 Mo.of Age		Days in	<36 Mo.of Age		≥36 Mo.of Age	
Milk	Milk	Fat	Milk	Fat	Milk	Milk	Fat	Milk	Fat
213	1.31	1.34	1.24	1.26	259	1.12	1.14	1.09	1.10
214	1.30	1.34	1.23	1.26	260	1.12	1.13	1.09	1.10
215	1.30	1.33	1.23	1.25	261	1.11	1.13	1.09	1.10
216	1.29	1.33	1.23	1.25	262	1.11	1.13	1.08	1.09
217	1.29	1.32	1.22	1.25	263	1.11	1.12	1.08	1.09
218	1.28	1.32	1.22	1.24	264	1.10	1.12	1.08	1.09
219	1.28	1.31	1.21	1.24	265	1.10	1.12	1.08	1.09
220	1.27	1.31	1.21	1.23	266	1.10	1.11	1.07	1.08
221	1.27	1.30	1.21	1.23	267	1.09	1.11	1.07	1.08
222	1.27	1.30	1.20	1.23	268	1.09	1.11	1.07	1.08
223	1.26	1.29	1.20	1.22	269	1.09	1.10	1.07	1.08
224	1.26	1.29	1.20	1.22	270	1.09	1.10	1.07	1.07
225	1.25	1.28	1.19	1.21	271	1.08	1.10	1.06	1.07
226	1.25	1.28	1.19	1.21	272	1.08	1.09	1.06	1.07
227	1.24	1.27	1.19	1.20	273	1.08	1.09	1.06	1.06
228	1.24	1.27	1.18	1.20	274	1.08	1.08	1.06	1.06
229	1.24	1.26	1.18	1.20	275	1.07	1.08	1.06	1.06
230	1.23	1.26	1.18	1.19	276	1.07	1.08	1.05	1.06
231	1.23	1.25	1.17	1.19	277	1.07	1.07	1.05	1.05
232	1.22	1.25	1.17	1.19	278	1.06	1.07	1.05	1.05
233	1.22	1.24	1.17	1.18	279	1.06	1.07	1.05	1.05
234	1.21	1.24	1.16	1.18	280	1.06	1.07	1.05	1.05
235	1.21	1.23	1.16	1.18	281	1.06	1.06	1.04	1.05
236	1.21	1.23	1.16	1.17	282	1.05	1.06	1.04	1.04
237	1.20	1.22	1.15	1.17	283	1.05	1.06	1.04	1.04
238	1.20	1.22	1.15	1.17	284	1.05	1.05	1.04	1.04
239	1.19	1.21	1.15	1.16	285	1.05	1.05	1.04	1.04
240	1.19	1.21	1.14	1.16	286	1.05	1.05	1.03	1.04
241	1.19	1.21	1.14	1.16	287	1.04	1.05	1.03	1.03
242	1.18	1.20	1.14	1.15	288	1.04	1.04	1.03	1.03
243	1.18	1.20	1.13	1.15	289	1.04	1.04	1.03	1.03
244	1.17	1.19	1.13	1.15	290	1.04	1.04	1.03	1.03
245	1.17	1.19	1.13	1.15	291	1.03	1.03	1.03	1.03
246	1.17	1.19	1.13	1.14	292	1.03	1.03	1.02	1.02
247	1.16	1.18	1.12	1.14	293	1.03	1.03	1.02	1.02
248	1.16	1.18	1.12	1.14	294	1.03	1.03	1.02	1.02
249	1.15	1.17	1.12	1.13	295	1.02	1.02	1.02	1.02
250	1.15	1.17	1.11	1.13	296	1.02	1.02	1.02	1.02
251	1.15	1.17	1.11	1.13	297	1.02	1.02	1.01	1.01
252	1.14	1.16	1.11	1.12	298	1.02	1.02	1.01	1.01
253	1.14	1.16	1.11	1.12	299	1.01	1.01	1.01	1.01
254	1.14	1.16	1.10	1.12	300	1.01	1.01	1.01	1.01
255	1.13	1.15	1.10	1.11	301	1.01	1.01	1.01	1.01
256	1.13	1.15	1.10	1.11	302	1.01	1.01	1.01	1.01
257	1.13	1.15	1.10	1.11	303	1.00	1.00	1.00	1.00
258	1.12	1.14	1.09	1.10	304	1.00	1.00	1.00	1.00

[2/] Factors for less than 36 months were based on 3,667 records, and factors for cows greater than or equal to 36 months were based on 10,422 records.

DHIA 305-Day Projection Factors [3]--Continued

HOLSTEIN

Days in Milk	<36 Mo.of Age		≥36 Mo.of Age		Days in Milk	<36 Mo.of Age		≥36 Mo.of Age	
	Milk	Fat	Milk	Fat		Milk	Fat	Milk	Fat
15	16.67	15.88	14.83	13.64	63	3.97	3.92	3.57	3.45
16	15.62	14.88	13.90	12.78	64	3.91	3.86	3.51	3.40
17	14.70	14.01	13.09	12.03	65	3.85	3.81	3.46	3.35
18	13.89	13.24	12.36	11.36	66	3.79	3.76	3.41	3.31
19	13.16	12.54	11.71	10.77	67	3.74	3.70	3.36	3.26
20	12.50	11.92	11.12	10.24	68	3.69	3.65	3.31	3.22
21	11.90	11.35	10.59	9.75	69	3.63	3.60	3.27	3.18
22	11.36	10.84	10.11	9.32	70	3.58	3.55	3.23	3.14
23	10.87	10.37	9.68	8.92	71	3.53	3.51	3.19	3.10
24	10.41	9.95	9.27	8.56	72	3.48	3.46	3.14	3.06
25	9.99	9.55	8.90	8.22	73	3.44	3.42	3.10	3.02
26	9.61	9.19	8.56	7.91	74	3.39	3.37	3.06	2.99
27	9.25	8.86	8.24	7.63	75	3.35	3.33	3.02	2.95
28	8.92	8.54	7.95	7.37	76	3.31	3.30	2.98	2.92
29	8.61	8.26	7.68	7.12	77	3.27	3.26	2.95	2.89
30	8.32	7.99	7.42	6.89	78	3.23	3.22	2.91	2.85
31	8.06	7.74	7.18	6.68	79	3.19	3.18	2.88	2.82
32	7.80	7.50	6.96	6.47	80	3.15	3.14	2.85	2.79
33	7.57	7.28	6.74	6.28	81	3.12	3.11	2.82	2.76
34	7.34	7.07	6.55	6.11	82	3.08	3.07	2.78	2.73
35	7.13	6.87	6.36	5.94	83	3.04	3.04	2.75	2.70
36	6.93	6.69	6.19	5.79	84	3.01	3.01	2.72	2.67
37	6.75	6.51	6.02	5.64	85	2.97	2.97	2.69	2.65
38	6.56	6.34	5.86	5.50	86	2.94	2.94	2.67	2.62
39	6.40	6.19	5.71	5.36	87	2.91	2.91	2.64	2.59
40	6.24	6.04	5.57	5.24	88	2.88	2.88	2.61	2.57
41	6.08	5.90	5.44	5.12	89	2.85	2.85	2.58	2.54
42	5.94	5.76	5.30	5.00	90	2.82	2.82	2.56	2.52
43	5.80	5.63	5.18	4.89	91	2.79	2.80	2.53	2.49
44	5.67	5.51	5.07	4.79	92	2.76	2.77	2.50	2.47
45	5.54	5.39	4.96	4.69	93	2.73	2.74	2.48	2.45
46	5.42	5.28	4.85	4.60	94	2.71	2.71	2.45	2.42
47	5.30	5.17	4.75	4.51	95	2.68	2.68	2.43	2.40
48	5.19	5.07	4.65	4.42	96	2.66	2.66	2.41	2.38
49	5.09	4.97	4.56	4.34	97	2.63	2.64	2.39	2.36
50	4.99	4.88	4.47	4.26	98	2.60	2.61	2.37	2.34
51	4.89	4.78	4.38	4.18	99	2.58	2.59	2.35	2.32
52	4.79	4.69	4.30	4.11	100	2.55	2.56	2.32	2.30
53	4.70	4.61	4.22	4.04	101	2.53	2.54	2.30	2.28
54	4.61	4.53	4.14	3.97	102	2.50	2.52	2.28	2.26
55	4.53	4.45	4.07	3.90	103	2.48	2.49	2.26	2.24
56	4.45	4.38	4.00	3.84	104	2.46	2.47	2.24	2.23
57	4.38	4.31	3.93	3.78	105	2.44	2.46	2.22	2.21
58	4.30	4.24	3.86	3.72	106	2.42	2.44	2.20	2.19
59	4.23	4.17	3.80	3.66	107	2.40	2.42	2.19	2.17
60	4.16	4.10	3.74	3.60	108	2.38	2.40	2.17	2.15
61	4.09	4.04	3.68	3.55	109	2.36	2.38	2.15	2.14
62	4.03	3.98	3.62	3.50	110	2.34	2.36	2.13	2.12

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[3] Factors for less than 36 months were based on 39,310 records, and factors for cows greater than or equal to 36 months were based on 92,763 records.

DHIA 305-Day Projection Factors [3]--Continued

HOLSTEIN

Days in	<36 Mo.of Age		≥36 Mo.of Age		Days in	<36 Mo.of Age		≥36 Mo.of Age	
Milk	Milk	Fat	Milk	Fat	Milk	Milk	Fat	Milk	Fat
111	2.32	2.34	2.12	2.10	162	1.65	1.67	1.54	1.54
112	2.30	2.32	2.10	2.09	163	1.64	1.66	1.53	1.54
113	2.28	2.30	2.09	2.07	164	1.63	1.65	1.52	1.53
114	2.26	2.28	2.07	2.06	165	1.62	1.64	1.51	1.52
115	2.25	2.26	2.05	2.04	166	1.61	1.64	1.51	1.51
116	2.23	2.25	2.04	2.03	167	1.61	1.63	1.50	1.51
117	2.21	2.23	2.02	2.01	168	1.60	1.62	1.49	1.50
118	2.20	2.21	2.01	2.00	169	1.59	1.61	1.49	1.49
119	2.18	2.20	1.99	1.98	170	1.58	1.60	1.48	1.48
120	2.16	2.18	1.98	1.97	171	1.57	1.60	1.47	1.48
121	2.14	2.16	1.97	1.96	172	1.57	1.59	1.46	1.47
122	2.13	2.15	1.95	1.94	173	1.56	1.58	1.46	1.46
123	2.11	2.13	1.94	1.93	174	1.55	1.57	1.45	1.46
124	2.09	2.11	1.93	1.92	175	1.54	1.56	1.44	1.45
125	2.08	2.10	1.91	1.91	176	1.54	1.56	1.44	1.44
126	2.06	2.08	1.90	1.90	177	1.53	1.55	1.43	1.44
127	2.05	2.07	1.89	1.89	178	1.52	1.54	1.43	1.43
128	2.03	2.05	1.87	1.87	179	1.51	1.54	1.42	1.43
129	2.02	2.04	1.86	1.86	180	1.51	1.52	1.41	1.42
130	2.01	2.03	1.85	1.85	181	1.50	1.52	1.41	1.42
131	1.99	2.01	1.84	1.84	182	1.49	1.51	1.40	1.41
132	1.98	2.00	1.82	1.82	183	1.49	1.50	1.39	1.40
133	1.97	1.99	1.81	1.81	184	1.48	1.50	1.39	1.40
134	1.95	1.97	1.80	1.80	185	1.47	1.49	1.38	1.39
135	1.94	1.96	1.79	1.79	186	1.47	1.49	1.38	1.39
136	1.93	1.95	1.77	1.78	187	1.46	1.48	1.37	1.38
137	1.92	1.94	1.76	1.77	188	1.45	1.48	1.36	1.37
138	1.90	1.93	1.75	1.76	189	1.45	1.47	1.36	1.37
139	1.89	1.91	1.74	1.75	190	1.44	1.46	1.35	1.36
140	1.88	1.90	1.73	1.74	191	1.44	1.45	1.35	1.36
141	1.87	1.89	1.72	1.73	192	1.43	1.45	1.34	1.35
142	1.86	1.88	1.71	1.72	193	1.42	1.44	1.34	1.35
143	1.84	1.87	1.70	1.71	194	1.42	1.44	1.33	1.34
144	1.83	1.86	1.69	1.70	195	1.41	1.43	1.33	1.34
145	1.82	1.85	1.68	1.69	196	1.40	1.42	1.32	1.33
146	1.81	1.83	1.67	1.68	197	1.40	1.42	1.32	1.33
147	1.80	1.82	1.66	1.67	198	1.39	1.41	1.31	1.32
148	1.79	1.81	1.65	1.66	199	1.39	1.40	1.31	1.32
149	1.78	1.80	1.65	1.65	200	1.38	1.40	1.30	1.31
150	1.77	1.79	1.64	1.64	201	1.37	1.39	1.30	1.31
151	1.76	1.78	1.63	1.64	202	1.37	1.38	1.29	1.30
152	1.75	1.77	1.62	1.63	203	1.36	1.38	1.29	1.30
153	1.74	1.76	1.61	1.62	204	1.36	1.37	1.28	1.29
154	1.73	1.75	1.60	1.61	205	1.35	1.37	1.28	1.29
155	1.72	1.74	1.59	1.60	206	1.35	1.36	1.27	1.28
156	1.71	1.73	1.58	1.59	207	1.34	1.36	1.27	1.28
157	1.70	1.72	1.58	1.59	208	1.33	1.35	1.27	1.28
158	1.69	1.71	1.57	1.58	209	1.33	1.34	1.26	1.27
159	1.68	1.70	1.56	1.57	210	1.32	1.34	1.26	1.27
160	1.67	1.69	1.55	1.56	211	1.32	1.33	1.25	1.26
161	1.66	1.68	1.54	1.55	212	1.31	1.33	1.25	1.26

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[3] Factors for less than 36 months were based on 39,310 records, and factors for cows greater than or equal to 36 months were based on 92,763 records.

DHIA 305-Day Projection Factors [3]--Continued

HOLSTEIN

Days in Milk	<36 Mo.of Age		≥36 Mo.of Age	
	Milk	Fat	Milk	Fat
213	1.31	1.32	1.24	1.25
214	1.30	1.32	1.24	1.25
215	1.30	1.31	1.24	1.25
216	1.29	1.31	1.23	1.24
217	1.29	1.30	1.23	1.24
218	1.28	1.30	1.22	1.23
219	1.28	1.29	1.22	1.23
220	1.27	1.29	1.22	1.23
221	1.27	1.29	1.21	1.22
222	1.26	1.28	1.21	1.22
223	1.26	1.28	1.20	1.21
224	1.25	1.27	1.20	1.21
225	1.25	1.27	1.20	1.21
226	1.24	1.26	1.19	1.20
227	1.24	1.26	1.19	1.20
228	1.24	1.25	1.19	1.20
229	1.23	1.25	1.18	1.19
230	1.23	1.24	1.18	1.19
231	1.22	1.24	1.17	1.18
232	1.22	1.23	1.17	1.18
233	1.22	1.23	1.17	1.18
234	1.21	1.23	1.16	1.17
235	1.21	1.22	1.16	1.17
236	1.20	1.22	1.16	1.17
237	1.20	1.21	1.15	1.16
238	1.20	1.21	1.15	1.16
239	1.19	1.20	1.15	1.16
240	1.19	1.20	1.14	1.15
241	1.18	1.20	1.14	1.15
242	1.18	1.19	1.14	1.15
243	1.18	1.19	1.13	1.14
244	1.17	1.18	1.13	1.14
245	1.17	1.18	1.13	1.14
246	1.17	1.18	1.12	1.13
247	1.16	1.17	1.12	1.13
248	1.16	1.17	1.12	1.13
249	1.15	1.16	1.12	1.13
250	1.15	1.16	1.11	1.12
251	1.15	1.16	1.11	1.12
252	1.14	1.15	1.11	1.12
253	1.14	1.15	1.10	1.11
254	1.14	1.15	1.10	1.11
255	1.13	1.14	1.10	1.11
256	1.13	1.14	1.10	1.11
257	1.13	1.14	1.09	1.10
258	1.12	1.13	1.09	1.10
259	1.12	1.13	1.09	1.10
260	1.12	1.13	1.09	1.09
261	1.11	1.12	1.08	1.09
262	1.11	1.12	1.08	1.09
263	1.11	1.12	1.08	1.09
264	1.10	1.11	1.08	1.08
265	1.10	1.11	1.07	1.08
266	1.10	1.11	1.07	1.08
267	1.09	1.10	1.07	1.08
268	1.09	1.10	1.07	1.07
269	1.09	1.10	1.07	1.07
270	1.08	1.09	1.06	1.07
271	1.08	1.09	1.06	1.07
272	1.08	1.09	1.06	1.07
273	1.07	1.08	1.06	1.06
274	1.07	1.08	1.06	1.06
275	1.07	1.08	1.05	1.06
276	1.07	1.07	1.05	1.06
277	1.06	1.07	1.05	1.05
278	1.06	1.07	1.05	1.05
279	1.06	1.07	1.05	1.05
280	1.06	1.06	1.04	1.05
281	1.05	1.06	1.04	1.05
282	1.05	1.06	1.04	1.04
283	1.05	1.06	1.04	1.04
284	1.05	1.05	1.04	1.04
285	1.05	1.05	1.03	1.04
286	1.04	1.05	1.03	1.04
287	1.04	1.04	1.03	1.03
288	1.04	1.04	1.03	1.03
289	1.04	1.04	1.03	1.03
290	1.03	1.04	1.03	1.03
291	1.03	1.03	1.03	1.03
292	1.03	1.03	1.02	1.02
293	1.03	1.03	1.02	1.02
294	1.03	1.03	1.02	1.02
295	1.02	1.02	1.02	1.02
296	1.02	1.02	1.02	1.02
297	1.02	1.02	1.01	1.01
298	1.02	1.02	1.01	1.01
299	1.01	1.01	1.01	1.01
300	1.01	1.01	1.01	1.01
301	1.01	1.01	1.01	1.01
302	1.01	1.01	1.01	1.01
303	1.00	1.00	1.00	1.00
304	1.00	1.00	1.00	1.00

3/ Factors for less than 36 months were based on 39,310 records, and factors for cows greater than or equal to 36 months were based on 92,763 records.

DHIA 305-Day Projection Factors 4/--Continued

JERSEY

Days in Milk	<36 Mo.of Age		≥36 Mo.of Age	
	Milk	Fat	Milk	Fat
15	15.24	16.39	14.22	14.46
16	14.29	15.37	13.34	13.56
17	13.45	14.46	12.55	12.76
18	12.70	13.66	11.85	12.05
19	12.04	12.94	11.23	11.43
20	11.44	12.30	10.67	10.86
21	10.89	11.71	10.17	10.34
22	10.40	11.18	9.70	9.88
23	9.95	10.70	9.29	9.45
24	9.54	10.26	8.90	9.06
25	9.16	9.85	8.55	8.70
26	8.81	9.47	8.22	8.37
27	8.49	9.12	7.92	8.07
28	8.19	8.80	7.64	7.78
29	7.91	8.50	7.38	7.52
30	7.65	8.22	7.14	7.27
31	7.41	7.96	6.91	7.04
32	7.18	7.71	6.69	6.83
33	6.97	7.48	6.50	6.63
34	6.76	7.26	6.31	6.43
35	6.57	7.06	6.13	6.26
36	6.39	6.87	5.96	6.09
37	6.22	6.68	5.80	5.93
38	6.06	6.51	5.65	5.78
39	5.91	6.34	5.51	5.64
40	5.76	6.19	5.38	5.50
41	5.63	6.04	5.24	5.36
42	5.50	5.90	5.12	5.24
43	5.37	5.76	5.01	5.13
44	5.25	5.63	4.90	5.01
45	5.14	5.51	4.79	4.90
46	5.03	5.40	4.69	4.80
47	4.93	5.29	4.59	4.70
48	4.83	5.18	4.50	4.61
49	4.73	5.07	4.41	4.52
50	4.64	4.97	4.32	4.43
51	4.55	4.87	4.24	4.35
52	4.47	4.78	4.16	4.27
53	4.39	4.70	4.09	4.19
54	4.31	4.62	4.02	4.12
55	4.23	4.54	3.94	4.05
56	4.16	4.46	3.87	3.98
57	4.09	4.38	3.81	3.92
58	4.02	4.30	3.75	3.85
59	3.95	4.23	3.69	3.79
60	3.89	4.17	3.63	3.73
61	3.83	4.10	3.57	3.67
62	3.78	4.04	3.52	3.62
63	3.72	3.98	3.47	3.56
64	3.67	3.92	3.42	3.51
65	3.61	3.86	3.37	3.47
66	3.56	3.81	3.32	3.42
67	3.51	3.75	3.27	3.37
68	3.46	3.70	3.23	3.32
69	3.42	3.65	3.19	3.28
70	3.37	3.60	3.15	3.24
71	3.33	3.55	3.11	3.20
72	3.29	3.51	3.07	3.16
73	3.25	3.46	3.03	3.12
74	3.21	3.42	2.99	3.08
75	3.17	3.38	2.95	3.04
76	3.13	3.33	2.92	3.00
77	3.09	3.29	2.88	2.97
78	3.05	3.25	2.85	2.93
79	3.01	3.21	2.82	2.90
80	2.98	3.17	2.78	2.86
81	2.95	3.13	2.75	2.83
82	2.92	3.10	2.72	2.80
83	2.89	3.07	2.69	2.77
84	2.86	3.03	2.67	2.75
85	2.83	3.00	2.64	2.72
86	2.80	2.97	2.61	2.69
87	2.77	2.94	2.58	2.66
88	2.74	2.91	2.56	2.64
89	2.71	2.88	2.53	2.61
90	2.68	2.85	2.50	2.58
91	2.66	2.82	2.48	2.56
92	2.63	2.79	2.45	2.53
93	2.60	2.76	2.43	2.51
94	2.58	2.74	2.41	2.48
95	2.55	2.71	2.39	2.46
96	2.53	2.68	2.36	2.44
97	2.51	2.65	2.34	2.42
98	2.49	2.63	2.32	2.40
99	2.46	2.60	2.30	2.38
100	2.44	2.58	2.28	2.35
101	2.42	2.56	2.26	2.33
102	2.40	2.54	2.24	2.31
103	2.38	2.52	2.23	2.29
104	2.36	2.50	2.21	2.28
105	2.34	2.47	2.19	2.26
106	2.32	2.45	2.17	2.24
107	2.30	2.43	2.15	2.22
108	2.29	2.41	2.14	2.20
109	2.27	2.39	2.12	2.18
110	2.25	2.37	2.10	2.17

4/ Factors for less than 36 months were based on 2,627 records, and factors for cows greater than or equal to 36 months were based on 6,317 records.

DHIA 305-Day Projection Factors [4]--Continued

JERSEY

Days in Milk	<36 Mo.of Age		≥36 Mo.of Age		Days in Milk	<36 Mo.of Age		≥36 Mo.of Age	
	Milk	Fat	Milk	Fat		Milk	Fat	Milk	Fat
111	2.23	2.35	2.09	2.15	162	1.62	1.68	1.53	1.57
112	2.21	2.33	2.07	2.13	163	1.61	1.67	1.53	1.56
113	2.20	2.31	2.06	2.12	164	1.61	1.66	1.52	1.55
114	2.18	2.30	2.04	2.10	165	1.60	1.65	1.51	1.55
115	2.16	2.28	2.03	2.09	166	1.59	1.64	1.50	1.54
116	2.15	2.26	2.01	2.07	167	1.58	1.63	1.50	1.53
117	2.13	2.24	2.00	2.06	168	1.57	1.63	1.49	1.52
118	2.12	2.22	1.98	2.04	169	1.57	1.62	1.48	1.52
119	2.10	2.21	1.97	2.03	170	1.56	1.61	1.48	1.51
120	2.09	2.19	1.96	2.01	171	1.55	1.60	1.47	1.50
121	2.07	2.17	1.94	2.00	172	1.54	1.59	1.46	1.49
122	2.06	2.16	1.93	1.98	173	1.54	1.59	1.45	1.49
123	2.04	2.14	1.92	1.97	174	1.53	1.58	1.45	1.48
124	2.03	2.13	1.90	1.96	175	1.52	1.57	1.44	1.47
125	2.01	2.11	1.89	1.94	176	1.51	1.56	1.43	1.46
126	2.00	2.10	1.88	1.93	177	1.51	1.56	1.43	1.46
127	1.99	2.08	1.87	1.92	178	1.50	1.55	1.42	1.45
128	1.98	2.07	1.86	1.91	179	1.49	1.54	1.42	1.45
129	1.96	2.05	1.84	1.89	180	1.48	1.53	1.41	1.44
130	1.95	2.04	1.83	1.88	181	1.48	1.53	1.40	1.43
131	1.94	2.03	1.82	1.87	182	1.47	1.52	1.40	1.43
132	1.92	2.01	1.81	1.86	183	1.46	1.51	1.39	1.42
133	1.91	2.00	1.80	1.85	184	1.46	1.50	1.39	1.42
134	1.90	1.99	1.79	1.83	185	1.45	1.50	1.38	1.41
135	1.89	1.97	1.78	1.82	186	1.44	1.49	1.38	1.41
136	1.87	1.96	1.77	1.81	187	1.44	1.48	1.37	1.40
137	1.86	1.94	1.76	1.80	188	1.43	1.48	1.37	1.40
138	1.85	1.93	1.75	1.79	189	1.42	1.47	1.36	1.39
139	1.84	1.92	1.74	1.78	190	1.42	1.46	1.36	1.39
140	1.83	1.91	1.73	1.77	191	1.41	1.45	1.35	1.38
141	1.82	1.89	1.71	1.76	192	1.41	1.45	1.35	1.37
142	1.81	1.88	1.70	1.75	193	1.40	1.44	1.34	1.37
143	1.80	1.87	1.69	1.74	194	1.40	1.43	1.34	1.36
144	1.79	1.86	1.68	1.73	195	1.39	1.43	1.33	1.36
145	1.78	1.85	1.67	1.72	196	1.38	1.42	1.33	1.35
146	1.77	1.84	1.66	1.71	197	1.38	1.41	1.32	1.34
147	1.76	1.83	1.66	1.70	198	1.37	1.41	1.31	1.34
148	1.75	1.82	1.65	1.69	199	1.37	1.40	1.31	1.33
149	1.74	1.81	1.64	1.68	200	1.36	1.40	1.30	1.33
150	1.73	1.79	1.63	1.67	201	1.36	1.39	1.30	1.32
151	1.72	1.78	1.62	1.66	202	1.35	1.39	1.29	1.32
152	1.71	1.77	1.61	1.65	203	1.35	1.38	1.29	1.31
153	1.70	1.76	1.60	1.64	204	1.34	1.38	1.28	1.31
154	1.69	1.76	1.60	1.64	205	1.34	1.37	1.28	1.30
155	1.68	1.75	1.59	1.63	206	1.33	1.37	1.28	1.30
156	1.67	1.74	1.58	1.62	207	1.33	1.36	1.27	1.29
157	1.66	1.73	1.57	1.61	208	1.32	1.36	1.27	1.29
158	1.66	1.72	1.57	1.60	209	1.32	1.35	1.26	1.28
159	1.65	1.71	1.56	1.60	210	1.31	1.34	1.26	1.28
160	1.64	1.70	1.55	1.59	211	1.31	1.34	1.25	1.27
161	1.63	1.69	1.54	1.58	212	1.30	1.33	1.25	1.27

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[4] Factors for less than 36 months were based on 2,627 records, and factors for cows greater than or equal to 36 months were based on 6,317 records.

DHIA 305-Day Projection Factors [4]--Continued

JERSEY

Days in Milk	<36 Mo.of Age		≥36 Mo.of Age	
	Milk	Fat	Milk	Fat
213	1.30	1.33	1.25	1.26
214	1.29	1.32	1.24	1.26
215	1.29	1.32	1.24	1.26
216	1.28	1.31	1.23	1.25
217	1.28	1.31	1.23	1.25
218	1.28	1.30	1.23	1.24
219	1.27	1.30	1.22	1.24
220	1.27	1.29	1.22	1.23
221	1.26	1.29	1.21	1.23
222	1.26	1.28	1.21	1.23
223	1.25	1.28	1.21	1.22
224	1.25	1.27	1.20	1.22
225	1.25	1.27	1.20	1.21
226	1.24	1.26	1.20	1.21
227	1.24	1.26	1.19	1.21
228	1.23	1.26	1.19	1.20
229	1.23	1.25	1.19	1.20
230	1.22	1.25	1.18	1.19
231	1.22	1.24	1.18	1.19
232	1.22	1.24	1.18	1.19
233	1.21	1.23	1.17	1.18
234	1.21	1.23	1.17	1.18
235	1.21	1.23	1.17	1.18
236	1.20	1.22	1.16	1.18
237	1.20	1.22	1.16	1.17
238	1.19	1.21	1.16	1.17
239	1.19	1.21	1.15	1.17
240	1.19	1.20	1.15	1.16
241	1.18	1.20	1.15	1.16
242	1.18	1.20	1.14	1.16
243	1.17	1.19	1.14	1.15
244	1.17	1.19	1.14	1.15
245	1.17	1.18	1.13	1.14
246	1.16	1.18	1.13	1.14
247	1.16	1.17	1.13	1.14
248	1.16	1.17	1.13	1.14
249	1.15	1.17	1.12	1.13
250	1.15	1.16	1.12	1.13
251	1.14	1.16	1.12	1.13
252	1.14	1.15	1.11	1.12
253	1.14	1.15	1.11	1.12
254	1.13	1.15	1.11	1.12
255	1.13	1.14	1.11	1.11
256	1.13	1.14	1.10	1.11
257	1.12	1.13	1.10	1.11
258	1.12	1.13	1.10	1.10
259	1.12	1.13	1.10	1.10
260	1.11	1.12	1.09	1.10
261	1.11	1.12	1.09	1.10
262	1.11	1.12	1.09	1.09
263	1.10	1.11	1.09	1.09
264	1.10	1.11	1.08	1.09
265	1.10	1.11	1.08	1.09
266	1.09	1.10	1.08	1.08
267	1.09	1.10	1.08	1.08
268	1.09	1.10	1.07	1.08
269	1.09	1.10	1.07	1.08
270	1.08	1.09	1.07	1.07
271	1.08	1.09	1.07	1.07
272	1.08	1.09	1.06	1.07
273	1.07	1.08	1.06	1.07
274	1.07	1.08	1.06	1.06
275	1.07	1.08	1.06	1.06
276	1.07	1.07	1.06	1.06
277	1.06	1.07	1.05	1.06
278	1.06	1.07	1.05	1.05
279	1.06	1.07	1.05	1.05
280	1.06	1.06	1.05	1.05
281	1.06	1.06	1.05	1.05
282	1.05	1.06	1.04	1.05
283	1.05	1.06	1.04	1.04
284	1.05	1.05	1.04	1.04
285	1.05	1.05	1.04	1.04
286	1.04	1.05	1.04	1.04
287	1.04	1.04	1.03	1.04
288	1.04	1.04	1.03	1.03
289	1.04	1.04	1.03	1.03
290	1.03	1.04	1.03	1.03
291	1.03	1.03	1.03	1.03
292	1.03	1.03	1.03	1.03
293	1.03	1.03	1.02	1.02
294	1.03	1.03	1.02	1.02
295	1.02	1.02	1.02	1.02
296	1.02	1.02	1.02	1.02
297	1.02	1.02	1.02	1.02
298	1.02	1.02	1.01	1.01
299	1.01	1.01	1.01	1.01
300	1.01	1.01	1.01	1.01
301	1.01	1.01	1.01	1.01
302	1.01	1.01	1.01	1.01
303	1.00	1.00	1.00	1.00
304	1.00	1.00	1.00	1.00

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[4] Factors for less than 36 months were based on 2,627 records, and factors for cows greater than or equal to 36 months were based on 6,317 records.

DHIA 305-Day Projection Factors [5]--Continued

BROWN SWISS

Days in Milk	<36 Mo.of Age		≥36 Mo.of Age		Days in Milk	<36 Mo.of Age		≥36 Mo.of Age	
	Milk	Fat	Milk	Fat		Milk	Fat	Milk	Fat
15	16.54	16.65	15.11	14.60	63	3.99	4.10	3.67	3.65
16	15.51	15.61	14.16	13.69	64	3.93	4.04	3.61	3.60
17	14.60	14.70	13.33	12.88	65	3.87	3.98	3.56	3.55
18	13.78	13.88	12.59	12.17	66	3.81	3.92	3.51	3.50
19	13.06	13.15	11.93	11.53	67	3.76	3.87	3.46	3.45
20	12.41	12.50	11.33	10.96	68	3.71	3.82	3.41	3.41
21	11.82	11.90	10.80	10.44	69	3.66	3.77	3.36	3.36
22	11.28	11.37	10.31	9.97	70	3.61	3.72	3.32	3.32
23	10.80	10.88	9.86	9.54	71	3.56	3.67	3.27	3.28
24	10.35	10.43	9.45	9.16	72	3.51	3.62	3.23	3.24
25	9.93	10.02	9.08	8.79	73	3.46	3.57	3.19	3.20
26	9.55	9.64	8.73	8.46	74	3.42	3.52	3.15	3.16
27	9.20	9.29	8.41	8.16	75	3.38	3.48	3.11	3.12
28	8.88	8.96	8.11	7.87	76	3.33	3.44	3.08	3.08
29	8.57	8.66	7.84	7.61	77	3.29	3.40	3.04	3.05
30	8.28	8.37	7.57	7.36	78	3.25	3.36	3.00	3.01
31	8.02	8.11	7.33	7.14	79	3.22	3.32	2.97	2.98
32	7.77	7.86	7.11	6.92	80	3.18	3.28	2.93	2.94
33	7.53	7.63	6.89	6.72	81	3.14	3.24	2.90	2.91
34	7.32	7.41	6.69	6.52	82	3.10	3.20	2.86	2.88
35	7.11	7.21	6.51	6.35	83	3.07	3.16	2.83	2.85
36	6.91	7.01	6.33	6.18	84	3.03	3.13	2.80	2.82
37	6.73	6.83	6.16	6.02	85	3.00	3.09	2.77	2.79
38	6.55	6.65	6.00	5.87	86	2.97	3.06	2.74	2.76
39	6.39	6.49	5.85	5.72	87	2.94	3.03	2.71	2.73
40	6.23	6.33	5.71	5.59	88	2.91	3.00	2.68	2.70
41	6.07	6.18	5.57	5.46	89	2.88	2.97	2.66	2.67
42	5.93	6.04	5.43	5.33	90	2.85	2.94	2.63	2.65
43	5.80	5.90	5.31	5.21	91	2.82	2.91	2.61	2.62
44	5.67	5.78	5.19	5.10	92	2.79	2.88	2.58	2.60
45	5.54	5.65	5.08	5.00	93	2.76	2.85	2.55	2.57
46	5.42	5.53	4.97	4.90	94	2.73	2.82	2.53	2.55
47	5.31	5.42	4.87	4.80	95	2.70	2.79	2.50	2.52
48	5.20	5.31	4.77	4.70	96	2.68	2.76	2.48	2.50
49	5.09	5.21	4.67	4.61	97	2.65	2.74	2.46	2.48
50	4.99	5.11	4.58	4.53	98	2.63	2.71	2.44	2.46
51	4.90	5.02	4.49	4.44	99	2.60	2.69	2.42	2.44
52	4.81	4.92	4.41	4.36	100	2.58	2.66	2.39	2.41
53	4.72	4.83	4.33	4.29	101	2.56	2.64	2.37	2.39
54	4.63	4.75	4.25	4.22	102	2.54	2.61	2.35	2.37
55	4.55	4.66	4.18	4.15	103	2.51	2.59	2.33	2.35
56	4.47	4.58	4.11	4.08	104	2.49	2.57	2.31	2.33
57	4.39	4.51	4.04	4.01	105	2.47	2.55	2.29	2.31
58	4.32	4.44	3.97	3.94	106	2.44	2.52	2.27	2.30
59	4.25	4.36	3.90	3.88	107	2.42	2.50	2.25	2.28
60	4.18	4.29	3.84	3.82	108	2.40	2.48	2.23	2.26
61	4.11	4.23	3.78	3.77	109	2.38	2.46	2.21	2.24
62	4.05	4.16	3.72	3.71	110	2.36	2.44	2.20	2.22

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[5] Factors for less than 36 months were based on 1,202 records, and factors for cows greater than or equal to 36 months were based on 4,008 records.

DHIA 305-Day Projection Factors [5]--Continued

BROWN SWISS

Days in Milk	<36 Mo.of Age		≥36 Mo.of Age		Days in Milk	<36 Mo.of Age		≥36 Mo.of Age	
	Milk	Fat	Milk	Fat		Milk	Fat	Milk	Fat
111	2.34	2.42	2.18	2.20	162	1.67	1.72	1.58	1.60
112	2.33	2.40	2.16	2.18	163	1.66	1.71	1.57	1.59
113	2.31	2.38	2.14	2.17	164	1.65	1.70	1.56	1.58
114	2.29	2.36	2.13	2.15	165	1.64	1.69	1.55	1.57
115	2.27	2.34	2.11	2.14	166	1.64	1.68	1.54	1.56
116	2.25	2.32	2.10	2.12	167	1.63	1.67	1.54	1.56
117	2.24	2.30	2.08	2.10	168	1.62	1.66	1.53	1.55
118	2.22	2.28	2.07	2.09	169	1.61	1.65	1.52	1.54
119	2.20	2.27	2.05	2.07	170	1.60	1.64	1.51	1.53
120	2.19	2.25	2.04	2.06	171	1.60	1.63	1.50	1.52
121	2.17	2.23	2.02	2.04	172	1.59	1.62	1.50	1.52
122	2.15	2.22	2.01	2.03	173	1.58	1.61	1.49	1.51
123	2.13	2.20	1.99	2.01	174	1.57	1.61	1.48	1.50
124	2.12	2.18	1.98	2.00	175	1.56	1.60	1.47	1.49
125	2.10	2.17	1.96	1.99	176	1.56	1.59	1.47	1.49
126	2.09	2.15	1.95	1.98	177	1.55	1.58	1.46	1.48
127	2.08	2.14	1.93	1.96	178	1.54	1.58	1.45	1.47
128	2.06	2.12	1.92	1.95	179	1.53	1.57	1.45	1.47
129	2.05	2.11	1.91	1.93	180	1.53	1.56	1.44	1.46
130	2.03	2.09	1.89	1.92	181	1.52	1.56	1.43	1.45
131	2.02	2.08	1.88	1.91	182	1.51	1.55	1.43	1.45
132	2.00	2.06	1.87	1.90	183	1.51	1.54	1.42	1.44
133	1.99	2.05	1.86	1.89	184	1.50	1.53	1.42	1.44
134	1.98	2.04	1.84	1.87	185	1.49	1.53	1.41	1.43
135	1.97	2.02	1.83	1.86	186	1.49	1.52	1.41	1.43
136	1.95	2.01	1.82	1.85	187	1.48	1.51	1.40	1.42
137	1.94	1.99	1.81	1.84	188	1.47	1.50	1.40	1.42
138	1.93	1.98	1.80	1.83	189	1.47	1.50	1.39	1.41
139	1.92	1.97	1.79	1.82	190	1.46	1.49	1.38	1.40
140	1.90	1.95	1.78	1.81	191	1.45	1.48	1.38	1.40
141	1.89	1.94	1.77	1.80	192	1.45	1.48	1.37	1.39
142	1.88	1.93	1.76	1.78	193	1.44	1.47	1.36	1.38
143	1.87	1.92	1.75	1.77	194	1.43	1.46	1.36	1.38
144	1.86	1.91	1.74	1.76	195	1.43	1.46	1.35	1.37
145	1.85	1.90	1.73	1.75	196	1.42	1.45	1.35	1.37
146	1.84	1.89	1.72	1.74	197	1.41	1.44	1.34	1.36
147	1.83	1.88	1.71	1.73	198	1.41	1.44	1.34	1.36
148	1.82	1.86	1.70	1.72	199	1.40	1.43	1.33	1.35
149	1.80	1.85	1.69	1.71	200	1.39	1.42	1.32	1.34
150	1.79	1.84	1.68	1.70	201	1.39	1.42	1.32	1.34
151	1.78	1.83	1.67	1.69	202	1.38	1.41	1.31	1.33
152	1.77	1.82	1.66	1.68	203	1.37	1.40	1.31	1.33
153	1.76	1.81	1.65	1.68	204	1.37	1.40	1.30	1.32
154	1.75	1.80	1.64	1.67	205	1.36	1.39	1.30	1.32
155	1.74	1.79	1.63	1.66	206	1.36	1.39	1.29	1.31
156	1.73	1.78	1.63	1.65	207	1.35	1.38	1.29	1.31
157	1.72	1.77	1.62	1.64	208	1.35	1.37	1.28	1.30
158	1.71	1.76	1.61	1.63	209	1.34	1.37	1.28	1.30
159	1.70	1.75	1.60	1.62	210	1.33	1.36	1.28	1.29
160	1.69	1.74	1.59	1.61	211	1.33	1.36	1.27	1.29
161	1.68	1.73	1.58	1.61	212	1.32	1.35	1.27	1.28

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[5] Factors for less than 36 months were based on 1,202 records, and factors for cows greater than or equal to 36 months were based on 4,008 records.

DHIA 305-Day Projection Factors [5] --Continued

BROWN SWISS

Days in Milk	<36 Mo.of Age		≥36 Mo.of Age		Days in Milk	<36 Mo.of Age		≥36 Mo.of Age	
	Milk	Fat	Milk	Fat		Milk	Fat	Milk	Fat
213	1.32	1.35	1.26	1.28	259	1.13	1.14	1.10	1.11
214	1.31	1.34	1.26	1.27	260	1.13	1.14	1.10	1.10
215	1.31	1.33	1.25	1.27	261	1.12	1.13	1.10	1.10
216	1.30	1.33	1.25	1.26	262	1.12	1.13	1.09	1.10
217	1.30	1.32	1.24	1.26	263	1.11	1.12	1.09	1.10
218	1.29	1.32	1.24	1.26	264	1.11	1.12	1.09	1.09
219	1.29	1.31	1.24	1.25	265	1.11	1.12	1.09	1.09
220	1.29	1.31	1.23	1.25	266	1.10	1.11	1.08	1.09
221	1.28	1.30	1.23	1.24	267	1.10	1.11	1.08	1.08
222	1.28	1.30	1.22	1.24	268	1.10	1.11	1.08	1.08
223	1.27	1.29	1.22	1.23	269	1.09	1.10	1.08	1.08
224	1.27	1.29	1.22	1.23	270	1.09	1.10	1.07	1.08
225	1.26	1.28	1.21	1.23	271	1.09	1.10	1.07	1.07
226	1.26	1.28	1.21	1.22	272	1.08	1.09	1.07	1.07
227	1.25	1.27	1.20	1.22	273	1.08	1.09	1.07	1.07
228	1.25	1.27	1.20	1.21	274	1.08	1.09	1.06	1.07
229	1.25	1.26	1.20	1.21	275	1.07	1.08	1.06	1.06
230	1.24	1.26	1.19	1.21	276	1.07	1.08	1.06	1.06
231	1.24	1.25	1.19	1.20	277	1.07	1.08	1.06	1.06
232	1.23	1.25	1.19	1.20	278	1.07	1.07	1.06	1.06
233	1.23	1.24	1.18	1.19	279	1.06	1.07	1.05	1.05
234	1.22	1.24	1.18	1.19	280	1.06	1.07	1.05	1.05
235	1.22	1.24	1.18	1.19	281	1.06	1.07	1.05	1.05
236	1.22	1.23	1.17	1.18	282	1.06	1.06	1.05	1.05
237	1.21	1.23	1.17	1.18	283	1.05	1.06	1.04	1.05
238	1.21	1.22	1.16	1.18	284	1.05	1.06	1.04	1.04
239	1.20	1.22	1.16	1.17	285	1.05	1.05	1.04	1.04
240	1.20	1.21	1.16	1.17	286	1.05	1.05	1.04	1.04
241	1.20	1.21	1.15	1.17	287	1.04	1.05	1.04	1.04
242	1.19	1.21	1.15	1.16	288	1.04	1.05	1.03	1.03
243	1.19	1.20	1.15	1.16	289	1.04	1.04	1.03	1.03
244	1.19	1.20	1.15	1.16	290	1.04	1.04	1.03	1.03
245	1.18	1.19	1.14	1.15	291	1.03	1.04	1.03	1.03
246	1.18	1.19	1.14	1.15	292	1.03	1.03	1.03	1.03
247	1.17	1.18	1.14	1.15	293	1.03	1.03	1.02	1.02
248	1.17	1.18	1.13	1.14	294	1.03	1.03	1.02	1.02
249	1.17	1.18	1.13	1.14	295	1.03	1.03	1.02	1.02
250	1.16	1.17	1.13	1.13	296	1.02	1.02	1.02	1.02
251	1.16	1.17	1.12	1.13	297	1.02	1.02	1.02	1.02
252	1.16	1.17	1.12	1.13	298	1.02	1.02	1.01	1.01
253	1.15	1.16	1.12	1.12	299	1.02	1.02	1.01	1.01
254	1.15	1.16	1.12	1.12	300	1.01	1.01	1.01	1.01
255	1.14	1.15	1.11	1.12	301	1.01	1.01	1.01	1.01
256	1.14	1.15	1.11	1.12	302	1.01	1.01	1.01	1.01
257	1.14	1.15	1.11	1.11	303	1.01	1.01	1.00	1.00
258	1.13	1.14	1.10	1.11	304	1.00	1.00	1.00	1.00

5/ Factors for less than 36 months were based on 1,202 records, and factors for cows greater than or equal to 36 months were based on 4,008 records.

DHIA 305-Day Projection Factors [6]--Continued

MILKING SHORTHORN, RED DANE, RED POLL, AND MIXED BREED

Days in Milk	<36 Mo.of Age		≥36 Mo.of Age		Days in Milk	<36 Mo.of Age		≥36 Mo.of Age	
	Milk	Fat	Milk	Fat		Milk	Fat	Milk	Fat
15	16.51	16.02	14.73	13.78	63	3.94	3.94	3.55	3.47
16	15.48	15.02	13.81	12.92	64	3.88	3.89	3.50	3.43
17	14.56	14.13	13.00	12.16	65	3.82	3.83	3.45	3.38
18	13.76	13.35	12.27	11.49	66	3.77	3.78	3.40	3.33
19	13.03	12.65	11.63	10.88	67	3.71	3.72	3.35	3.28
20	12.38	12.02	11.05	10.35	68	3.66	3.67	3.30	3.24
21	11.79	11.45	10.52	9.86	69	3.61	3.62	3.26	3.20
22	11.25	10.93	10.04	9.41	70	3.56	3.57	3.21	3.16
23	10.76	10.46	9.61	9.01	71	3.51	3.53	3.17	3.12
24	10.32	10.03	9.21	8.65	72	3.46	3.48	3.13	3.08
25	9.90	9.63	8.84	8.31	73	3.42	3.43	3.09	3.04
26	9.52	9.27	8.50	8.00	74	3.37	3.39	3.05	3.01
27	9.17	8.93	8.19	7.70	75	3.33	3.35	3.01	2.97
28	8.84	8.62	7.90	7.44	76	3.29	3.31	2.97	2.93
29	8.54	8.33	7.63	7.19	77	3.25	3.27	2.94	2.90
30	8.25	8.05	7.37	6.96	78	3.21	3.23	2.90	2.87
31	7.98	7.80	7.14	6.74	79	3.17	3.19	2.87	2.84
32	7.73	7.56	6.91	6.54	80	3.13	3.16	2.84	2.81
33	7.50	7.34	6.70	6.35	81	3.10	3.12	2.81	2.78
34	7.28	7.12	6.51	6.17	82	3.06	3.09	2.77	2.75
35	7.07	6.93	6.33	6.00	83	3.03	3.05	2.74	2.72
36	6.87	6.74	6.15	5.84	84	2.99	3.02	2.71	2.69
37	6.69	6.56	5.98	5.69	85	2.96	2.99	2.69	2.66
38	6.51	6.39	5.83	5.55	86	2.93	2.95	2.66	2.64
39	6.34	6.23	5.68	5.41	87	2.89	2.92	2.63	2.61
40	6.18	6.08	5.54	5.29	88	2.86	2.89	2.60	2.58
41	6.03	5.94	5.41	5.17	89	2.83	2.86	2.57	2.56
42	5.89	5.81	5.28	5.05	90	2.81	2.84	2.55	2.53
43	5.75	5.68	5.16	4.94	91	2.78	2.81	2.52	2.51
44	5.62	5.55	5.04	4.83	92	2.75	2.78	2.49	2.48
45	5.50	5.43	4.93	4.73	93	2.72	2.75	2.47	2.46
46	5.38	5.32	4.82	4.64	94	2.69	2.73	2.45	2.44
47	5.26	5.21	4.72	4.54	95	2.67	2.70	2.42	2.41
48	5.15	5.10	4.62	4.45	96	2.64	2.67	2.40	2.39
49	5.05	5.00	4.53	4.37	97	2.62	2.65	2.38	2.37
50	4.95	4.91	4.44	4.29	98	2.59	2.62	2.36	2.35
51	4.85	4.81	4.35	4.21	99	2.57	2.60	2.34	2.33
52	4.76	4.72	4.27	4.14	100	2.54	2.57	2.32	2.31
53	4.67	4.64	4.19	4.07	101	2.52	2.55	2.30	2.29
54	4.58	4.56	4.12	4.00	102	2.49	2.53	2.28	2.27
55	4.50	4.48	4.05	3.93	103	2.47	2.51	2.26	2.25
56	4.42	4.41	3.98	3.87	104	2.45	2.49	2.24	2.24
57	4.35	4.33	3.91	3.80	105	2.43	2.47	2.22	2.22
58	4.27	4.26	3.84	3.74	106	2.41	2.45	2.20	2.20
59	4.20	4.19	3.78	3.68	107	2.39	2.43	2.18	2.18
60	4.13	4.13	3.72	3.63	108	2.37	2.41	2.16	2.16
61	4.07	4.06	3.66	3.57	109	2.35	2.39	2.15	2.15
62	4.00	4.00	3.61	3.52	110	2.33	2.37	2.13	2.13

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[6] Computed from a weighted combination of Ayrshire, Guernsey, Holstein, Jersey, and Brown Swiss records.

DHIA 305-Day Projection Factors [6]--Continued

MILKING SHORTHORN, RED DANE, RED POLL, AND MIXED BREED

Days in Milk	<36 Mo.of Age		≥36 Mo.of Age		Days in Milk	<36 Mo.of Age		≥36 Mo.of Age	
	Milk	Fat	Milk	Fat		Milk	Fat	Milk	Fat
111	2.31	2.35	2.11	2.11	162	1.65	1.68	1.53	1.55
112	2.29	2.33	2.09	2.10	163	1.64	1.67	1.53	1.54
113	2.27	2.31	2.08	2.08	164	1.63	1.66	1.52	1.53
114	2.26	2.29	2.06	2.07	165	1.62	1.65	1.51	1.53
115	2.24	2.27	2.05	2.05	166	1.61	1.64	1.50	1.52
116	2.22	2.25	2.03	2.04	167	1.60	1.63	1.50	1.51
117	2.20	2.24	2.02	2.02	168	1.59	1.62	1.49	1.51
118	2.19	2.22	2.00	2.01	169	1.59	1.61	1.48	1.50
119	2.17	2.20	1.99	1.99	170	1.58	1.61	1.48	1.49
120	2.15	2.19	1.97	1.98	171	1.57	1.60	1.47	1.49
121	2.13	2.17	1.96	1.97	172	1.56	1.59	1.46	1.48
122	2.12	2.16	1.95	1.95	173	1.56	1.58	1.46	1.47
123	2.10	2.14	1.93	1.94	174	1.55	1.57	1.45	1.46
124	2.09	2.12	1.92	1.93	175	1.54	1.57	1.44	1.46
125	2.07	2.11	1.91	1.91	176	1.53	1.56	1.44	1.45
126	2.06	2.09	1.89	1.90	177	1.53	1.55	1.43	1.44
127	2.05	2.08	1.88	1.89	178	1.52	1.54	1.42	1.44
128	2.03	2.06	1.87	1.88	179	1.51	1.54	1.42	1.43
129	2.02	2.05	1.86	1.87	180	1.50	1.53	1.41	1.42
130	2.00	2.03	1.84	1.85	181	1.50	1.52	1.41	1.42
131	1.99	2.02	1.83	1.84	182	1.49	1.52	1.40	1.41
132	1.98	2.01	1.82	1.83	183	1.48	1.51	1.39	1.40
133	1.96	1.99	1.81	1.82	184	1.48	1.50	1.39	1.40
134	1.95	1.98	1.80	1.81	185	1.47	1.49	1.38	1.39
135	1.94	1.97	1.79	1.80	186	1.46	1.49	1.38	1.39
136	1.93	1.96	1.77	1.78	187	1.46	1.48	1.37	1.38
137	1.91	1.94	1.76	1.77	188	1.45	1.48	1.36	1.38
138	1.90	1.93	1.75	1.76	189	1.44	1.47	1.36	1.37
139	1.89	1.92	1.74	1.75	190	1.44	1.46	1.35	1.36
140	1.88	1.91	1.73	1.74	191	1.43	1.46	1.35	1.36
141	1.86	1.89	1.72	1.73	192	1.43	1.45	1.34	1.35
142	1.85	1.88	1.71	1.72	193	1.42	1.44	1.34	1.35
143	1.84	1.87	1.70	1.71	194	1.41	1.44	1.33	1.34
144	1.83	1.86	1.69	1.70	195	1.41	1.43	1.33	1.34
145	1.82	1.85	1.68	1.69	196	1.40	1.42	1.32	1.33
146	1.81	1.84	1.67	1.68	197	1.40	1.42	1.32	1.33
147	1.79	1.83	1.66	1.67	198	1.39	1.41	1.31	1.32
148	1.78	1.82	1.65	1.66	199	1.38	1.41	1.31	1.32
149	1.77	1.80	1.65	1.66	200	1.38	1.40	1.30	1.31
150	1.76	1.79	1.64	1.65	201	1.37	1.39	1.30	1.31
151	1.75	1.78	1.63	1.64	202	1.37	1.39	1.29	1.30
152	1.74	1.77	1.62	1.63	203	1.36	1.38	1.29	1.30
153	1.73	1.76	1.61	1.62	204	1.36	1.38	1.28	1.29
154	1.72	1.75	1.60	1.61	205	1.35	1.37	1.28	1.29
155	1.71	1.74	1.59	1.61	206	1.35	1.37	1.27	1.28
156	1.70	1.73	1.58	1.60	207	1.34	1.36	1.27	1.28
157	1.70	1.72	1.58	1.59	208	1.33	1.35	1.27	1.28
158	1.69	1.71	1.57	1.58	209	1.33	1.35	1.26	1.27
159	1.68	1.71	1.56	1.57	210	1.32	1.34	1.26	1.27
160	1.67	1.70	1.55	1.57	211	1.32	1.34	1.25	1.26
161	1.66	1.69	1.54	1.56	212	1.31	1.33	1.25	1.26

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[6] Computed from a weighted combination of Ayrshire, Guernsey, Holstein, Jersey, and Brown Swiss records.

DHIA 305-Day Projection Factors [6] --Continued

MILKING SHORTHORN, RED DANE, RED POLL, AND MIXED BREED

Days in Milk	<36 Mo.of Age		≥36 Mo.of Age	
	Milk	Fat	Milk	Fat
213	1.31	1.33	1.24	1.25
214	1.30	1.32	1.24	1.25
215	1.30	1.32	1.24	1.25
216	1.29	1.31	1.23	1.24
217	1.29	1.31	1.23	1.24
218	1.28	1.30	1.22	1.23
219	1.28	1.30	1.22	1.23
220	1.27	1.29	1.22	1.23
221	1.27	1.29	1.21	1.22
222	1.26	1.28	1.21	1.22
223	1.26	1.28	1.20	1.21
224	1.25	1.27	1.20	1.21
225	1.25	1.27	1.20	1.21
226	1.24	1.26	1.19	1.20
227	1.24	1.26	1.19	1.20
228	1.24	1.25	1.19	1.20
229	1.23	1.25	1.18	1.19
230	1.23	1.24	1.18	1.19
231	1.22	1.24	1.17	1.18
232	1.22	1.23	1.17	1.18
233	1.21	1.23	1.17	1.18
234	1.21	1.23	1.16	1.17
235	1.21	1.22	1.16	1.17
236	1.20	1.22	1.16	1.17
237	1.20	1.21	1.15	1.16
238	1.20	1.21	1.15	1.16
239	1.19	1.20	1.15	1.16
240	1.19	1.20	1.14	1.15
241	1.18	1.20	1.14	1.15
242	1.18	1.19	1.14	1.15
243	1.18	1.19	1.13	1.14
244	1.17	1.18	1.13	1.14
245	1.17	1.18	1.13	1.14
246	1.17	1.18	1.13	1.13
247	1.16	1.17	1.12	1.13
248	1.16	1.17	1.12	1.13
249	1.15	1.16	1.12	1.13
250	1.15	1.16	1.11	1.12
251	1.15	1.16	1.11	1.12
252	1.14	1.15	1.11	1.12
253	1.14	1.15	1.11	1.11
254	1.14	1.15	1.10	1.11
255	1.13	1.14	1.10	1.11
256	1.13	1.14	1.10	1.11
257	1.13	1.14	1.09	1.10
258	1.12	1.13	1.09	1.10
259	1.12	1.13	1.09	1.10
260	1.12	1.13	1.09	1.09
261	1.11	1.12	1.08	1.09
262	1.11	1.12	1.08	1.09
263	1.11	1.12	1.08	1.09
264	1.10	1.11	1.08	1.08
265	1.10	1.11	1.08	1.08
266	1.10	1.11	1.07	1.08
267	1.09	1.10	1.07	1.08
268	1.09	1.10	1.07	1.07
269	1.09	1.10	1.07	1.07
270	1.08	1.09	1.06	1.07
271	1.08	1.09	1.06	1.07
272	1.08	1.09	1.06	1.07
273	1.07	1.08	1.06	1.06
274	1.07	1.08	1.06	1.06
275	1.07	1.08	1.05	1.06
276	1.07	1.07	1.05	1.06
277	1.06	1.07	1.05	1.05
278	1.06	1.07	1.05	1.05
279	1.06	1.07	1.05	1.05
280	1.06	1.06	1.04	1.05
281	1.05	1.06	1.04	1.05
282	1.05	1.06	1.04	1.04
283	1.05	1.06	1.04	1.04
284	1.05	1.05	1.04	1.04
285	1.05	1.05	1.03	1.04
286	1.04	1.05	1.03	1.04
287	1.04	1.04	1.03	1.03
288	1.04	1.04	1.03	1.03
289	1.04	1.04	1.03	1.03
290	1.03	1.04	1.03	1.03
291	1.03	1.03	1.03	1.03
292	1.03	1.03	1.02	1.02
293	1.03	1.03	1.02	1.02
294	1.03	1.03	1.02	1.02
295	1.02	1.02	1.02	1.02
296	1.02	1.02	1.02	1.02
297	1.02	1.02	1.01	1.01
298	1.02	1.02	1.01	1.01
299	1.01	1.01	1.01	1.01
300	1.01	1.01	1.01	1.01
301	1.01	1.01	1.01	1.01
302	1.01	1.01	1.01	1.01
303	1.00	1.00	1.00	1.00
304	1.00	1.00	1.00	1.00

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[6] Computed from a weighted combination of Ayrshire, Guernsey, Holstein, Jersey, and Brown Swiss records.

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National Cooperative Dairy Herd Improvement Program
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A plan for every size herd
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AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter
ARS-44-166
(Vol. 41, No. 7)

September-October 1965

DHIA RULES

(Revised and Accepted by the American Dairy Science Association in June 1965)

1. STANDARD EQUIPMENT AND METHODS

All equipment and methods shall conform to the standards and methods set by the American Dairy Science Association and/or the State regulatory agency. The accuracy of all equipment shall be checked as frequently as necessary to insure that equipment is operating within the standards established by ADSA.

The ADSA Dairy Records Committee will offer an opinion of accuracy of equipment or method when they have been tested and results published by three or more colleges, experiment stations, or independent research laboratories. The responsible supervising agency and/or the regulatory agency in each State shall have authority to approve equipment or methods found to produce results within tolerances established by the ADSA Dairy Records Committee.

Tolerances are as follows:

a. Butterfat test on individual cows shall be within plus or minus 0.2 of the fat test obtained by conventional sampling methods.

b. Daily milk weights as compared to an accurate scale should be within 3 percent or one-half pound, whichever

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is the greater, and the error should be random so it will cancel with repeated sampling.

Ninety percent of the tests and weights should fall within these limits.

2. COOPERATION OF OWNER

Owners must make available all registration certificates and other information for permanent identification of animals on test and of their offspring. They must provide the supervisor with freshening and dry dates, purchase and sale dates, abortion dates, and death dates. When requested they must cooperate and assist the supervisor in obtaining feed weights, roughage quality, value of product, breeding dates, and any information needed for the calculation of complete DHIA records.

3. IDENTIFICATION OF ANIMALS

Every animal in DHIA herds must be positively identified and recorded in the owner's herd book within 60 days after entering the herd by birth or purchase. A herd registry page is provided for this purpose. Cows on test must be permanently identified with (1) registration number, if registered, or (2) uniform series eartags as used in DHIA, disease eradication, and artificial breeding (State code; 1-, 2-, or 3-letter prefix; 4 digits).

The supervisor shall verify the identity of each cow, when entered on test by registration certificates, if registered, or by eartag numbers, if not registered and record the information on appropriate forms. Thereafter, at each milking, the supervisor must assure himself of the correct identity of each cow as she is milked.

Tattoo numbers, branded numbers, or private eartags are acceptable identification provided that they are cross-indexed to one of the above identification systems.

Supplemental identification.--Neck chains, strap numbers, or other numbering systems may be used on young stock until they enter the milking herd. They also may be used as secondary identification for milking cows provided that they are cross-indexed with permanent identification.

4. PRODUCTION REPORTS

DHIA lactation records shall be computed and reported for every cow on test for each calving. Monthly and yearly herd reports shall also be computed and reported as required by the county and State extension service.

5. COWS TO BE TESTED

DHIA records must be kept on all dairy cows in the herd or on the farm that have ever calved, regardless of ownership, except as specified in the rule on permanent nurse cows. DHIA herds shall consist of all cows that have freshened at least once, located on one or more farms under one management.

Members owning or operating more than one farm may devide their herds into farm units, and each may be tested as a separate unit when the units are maintained as separate herds and there is no shifting of cows between herds. In single herds involving two or more distinctly individual breeds, separate herd averages or a composite herd average may be calculated and reported as such.

The owner or his management is required to report to the supervisor all cows added to or removed from the herd since the previous test, as well as first-calf heifers that have calved.

In any case involving the questionable assignment of cows to a herd to influence a herd average, the decision of the local or State Board of Directors in council with the State Extension Dairyman in Charge of Production Testing shall be considered final. In special cases involving joint operation of herds or groups of cows, the local Board of Directors in council with the State Extension Dairyman shall decide the policy.

6. MONTHLY AND BIMONTHLY TESTING

Associations may operate on the monthly or bimonthly basis or on both, as approved by the State Extension Dairyman.

7. NUMBER OF COWS TESTED DAILY

The number of cows and herds tested daily shall be left to the judgement and discretion of the DHIA Board of Directors and State Extension Dairyman concerned. They will consider the ability of the supervisor, milking facilities, and type of records being kept.

The number of cows tested shall be limited as much as necessary to allow sufficient time for the supervisor on each visit to the farm to properly comply with all the Standard DHIA Rules, such as the identification of all animals in the herd, including eartagging when necessary; proper supervision of milking, including the identification of the cows being milked; using the proper procedures and methods of sampling, including the handling of samples and the use of a locked sample case; obtaining and using his own data; properly recording data on the barn sheet; keeping the owner's herd book up-to-date; and making all required monthly, yearly, and lactation reports. Sufficient time also shall be allowed for the supervisor to check all his work and reports for accuracy before leaving the farm.

8. SUPERVISION OF MILKERS AND COWS

The herd owner shall milk his cows in such order that on the testing day cows being milked at the same time will be in close proximity and full view of the supervisor for observation.

The supervisor must be in position to observe the milkers, machines, and cows during the entire milking process.

9. SUPERVISOR USES OWN DATA

The supervisor or a person or central processing service authorized and approved by the State Extension Dairyman and the responsible organization shall compute the production records for a testing period from the data obtained on the testing date.

10. CENTERING THE TESTING DAY

Production records shall be calculated by centering the testing day according to the method outlined in the DHIA Supervisor's Manual. All tests shall be applied to the testing period in which made.

11. SUPERVISOR'S ROUTE

In order that the herd owner may not know the exact day the supervisor will visit a farm, the supervisor shall from time to time vary his visits to each farm as much as 3 days ahead of, or 3 days after, the centering day.

12. LOCK SAMPLE CASES

All milk samples, glassware, and the current monthly barn sheet with recorded test day data shall be securely locked by the supervisor when they are not under his immediate observation.

13. METHODS OF SAMPLING

All weighing, sampling, and recording of each milking of each cow for the 24-hour period must be done by the supervisor or person authorized by the local DHIA Board of Directors. Each cow's milk must be thoroughly mixed immediately before sampling.

14. LOST SAMPLES

When a sample is lost, the previous month's butterfat test shall be used. When milk weights are not obtained, the pounds of milk for the current testing day shall be estimated from the previous month's record by use of the nurse-cow table in the DHIA Supervisor's Manual. In either case, the record shall be marked "estimated".

15. ABNORMAL TESTS

In cases of severe sickness or injury, except for the first month of lactation, a 40-percent change in total daily pounds of fat from the preceding test shall be considered abnormal. Abnormally high or low records due to causes such as sickness, severe injury, and off feed shall be handled similarly to lost samples. In case a cow is abnormal 2 months in succession, her actual production shall be used to compute credits for the second month.

16. RETESTS, OWNER'S REQUEST

If for any reason a herd owner is not satisfied with the test on his herd, he may call for a retest. The herd owner shall pay the cost of the retest unless otherwise determined by the local Board of Directors. The use of the requested retest and the regular test shall be at the discretion of the State Extension Dairyman.

17. SURPRISE TESTS - DHIA

Surprise tests may be conducted for verification of records of high producing cows and herds and for investigation of rule infractions. They may be ordered by the State or local organization and/or the State Extension Dairyman.

The use of the surprise test and the payment thereof shall be determined by the organization requiring such tests. Surprise tests shall be preceded by a preliminary dry milking.

18. SURPRISE TESTS - DHIR

The State official in charge of DHIA testing shall arrange for surprise tests under the following conditions, or when requested to do so by the breed registry organizations.

a. Production requirements.--If, after the first 90 days of a lactation, a cow equals or exceeds the daily butterfat production shown in column A, by ages, one surprise test with preliminary milking shall be made within the next two months, if possible; and two surprise tests shall be made before the 305th day for those cows who equal or exceed the average daily butterfat shown in column B after the first 90 days.

AGE	A	B
2 yrs.	2.8 lb. fat daily	2.9 lb. fat daily
3 yrs.	3.1 lb. fat daily	3.3 lb. fat daily
4 yrs. and over	3.4 lb. fat daily	3.7 lb. fat daily

These surprise tests shall include the entire herd except that in herds requiring more than one day's supervision, only the cows meeting the surprise test requirements need be included.

The preliminary milking need not be sampled or tested. The breed registry organization shall be notified by the State Superintendent of Official Testing of cows and herds on which surprise tests have been conducted by use of the PDCA Surprise Test Form.

b. Use of surprise test.--The surprise test shall be used in lieu of the regular monthly test and, if possible, shall be made by a different supervisor. Whether or not a regular test will also be conducted during the month is left to the discretion of the local DHIA Board of Directors.

c. Payment of surprise test.--During any calendar year, the herd owner shall pay for all surprise tests conducted in place of the regular tests and the herd owner shall also pay for the first surprise test made in addition to a regular test. The breed registry organization will pay for all other extra tests.

Brown Swiss: All surprise test costs will be paid by the owner, except those ordered by the association.

19. FRESH COWS - DRY COWS - COWS SOLD

A cow shall not be tested until the seventh day after she calves, counting the day of calving as the first day. The record, however, is started on the fourth day after calving, counting the calving day as the first day. Cows freshening after the supervisor's regular visit and before the end of the testing period shall be given credit for their production during that period, as calculated on the basis of the results of the next test. For dry cows - the dry date is the first day the cow is not milked. The day a cow is sold and leaves the herd counts as the last day in the herd, and she gets production for that full day.

20. ABORTING COWS OR COWS FRESHENING WITHOUT GOING DRY

In case a cow aborts while dry, her record shall be figured the same as for a fresh cow. If she aborts while in milk and has carried a calf less than 152 days, her current record shall continue without interruption. If a breeding date is not available and the cow aborts while in milk for less than 200 days, her current record shall continue without interruption. Otherwise the current record shall end and a new lactation shall begin.

21. COWS NURSING CALVES

a. Temporary nurse cow.--Cows nursing calves on the testing day are considered on test. Records other than production are taken as usual and recorded in the herd record book. No milk samples are taken. Milk weights and tests obtained on the last testing day before calves are put on cows or on the first testing day after calves have been removed are used in computing production for the testing period in which calves are nursed, along with the nurse-cow table in the DHIA Supervisor's Manual. The recorded number of days in milk for the lactation shall include the number of days the cows nursed calves during the lactation period.

If records are calculated by a computing center, they will be coded as required.

b. Permanent nurse cow.--At the request of the herd owner, a cow that is to be used as a nurse cow throughout the entire lactation period may be removed from test from the date of freshening until the following date of freshening, provided she has at least one complete lactation record.

Permanent nurse cows are to be re-entered on test at the following calving unless they are requalified. Cows are disqualified as permanent nurse cows if at any time they are milked by machine or by hand.

22. YEARLY HERD AVERAGES

The yearly herd average is calculated on a cow-year basis. As outlined in the footnotes on the monthly herd summary, DHIA-12, the total number of cow-days on test for the year is divided by 365 (366 in a leap year) to obtain the number of cow-years. The totals for the year are divided by the number of cow-years to obtain the herd averages for the year.

23. YEARLY ASSOCIATION AVERAGE

The association average is found by dividing the total pounds of milk and total pounds of butterfat by the total cow-years.

24. COMPUTING FRACTIONS

The weights of milk at each milking and the day's total of milk are to be recorded to the nearest one-tenth of a pound; the month's milk to the nearest 10 pounds. Butterfat tests shall be recorded to the nearest one-tenth of a percent and monthly butterfat to the nearest pound. The price per hundredweight of milk and feed may be taken to the nearest 10 cents. The value of product and cost of feed may be to the nearest whole dollar. If the fraction is less than half, drop it. If half or more, change to the next highest number.

25. FEEDING AND CARE OF COWS

a. The details of feeding and caring for cows on Standard DHIA are under the direction of the owner. At no time shall any condiments, conditioning compounds, tonics, drugs, or hormonal products be given the cow unless it is necessary in providing adequate medical attention in case of sickness or injury.

b. Any practice that is intended to create or does create an abnormal percentage or abnormal yield of milk is a violation. The use of any product producing thyroidal effects is prohibited.

26. RELATION OF SUPERVISORS AND OWNERS

As an employee of the local dairy herd improvement association, the supervisor's duty is to see that the tests are honestly made, accurately recorded, and completely reported. No payment, gift, or gratuity to supervisor is permitted from the owner of a cow or anyone interested in her. The supervisor may act as a collecting agent for the association. He may collect payment for dues and fees for the association, provided a receipt is given the member and a carbon copy of the same receipt is given to the association treasurer. The supervisor shall not test his own herd nor the herd of the immediate members of his family. The supervisor is not at liberty to decide which rules are essential and which are not, but is required to observe all of them in detail. Owners or persons in their employ are equally held responsible with the supervisor for enforcement of these rules.

27. ENFORCEMENT OF STANDARD DHIA RULES

Any violations of the above rules including fraudulent practices shall be referred to the local or State DHIA Board of Directors for their consideration and appropriate action.

UNIFIED RULES FOR DHIR
(In addition to Standard DHIA Rules)

(Revised and Accepted 1965, by the Purebred Dairy Cattle Association and the American Dairy Science Association)

Member Dairy Cattle Registry Organizations:

The American Guernsey Cattle Club, Peterborough, N.H. 03458
The American Jersey Cattle Club, 1521 E. Broad St., Columbus, Ohio 43205
Ayrshire Breeders' Association, Brandon, Vt. 05733
The Brown Swiss Cattle Breeders' Association, Beloit, Wis. 53512
Holstein-Friesian Association of America, Brattleboro, Vt. 05302

Upon receipt by a dairy breed registry organization (PDCA member) of an application for the acceptance of Standard DHIA records on a form provided by the breed registry organization and payment of the required fees set forth on the application, electronically calculated Standard Dairy Herd Improvement Association records of all registered cows of that breed in the herd or herds of the applicant will be accepted for use by the breed registry organization, subject to the following requirements in addition to those currently set forth, or which may from time to time be set forth, for Standard DHIA testing. These records will be designated as "Dairy Herd Improvement Registry" (DHIR) records.

1. ORGANIZATION AND SUPERVISIONAL AUTHORITY

The DHIR production testing program shall be conducted under the joint administration of the State Extension Dairyman or other State official in charge of DHIA testing within a particular State and the Superintendent of Official Testing of the appropriate breed registry organization. The State Official in charge of DHIA testing is responsible for supervising all records in strict accordance with the rules and regulations for Standard DHIA testing and the additional requirements set forth herein and any additional requirements of the appropriate breed registry organization. He shall assume responsibility for the enforcement of all such rules and regulations and shall withhold approval of production records from a herd owner or from a DHIA supervisor that are not made in strict accordance with the rules and regulations. He has the further responsibility of calling to the attention of the Superintendent of Official Testing of the appropriate breeding registry organization all failures by herd owners to comply with the rules of the DHIR testing program.

DHIA records from any herd or any DHIA where the compensation of the DHIA supervisor is made directly by the herd owner will not be accepted or approved under this plan.

The Superintendent of Official Testing of the breed registry organization is responsible for advising the State official in charge of DHIA testing on all matters concerned with the acceptance of DHIR records by the appropriate breed registry organization. The Superintendent of Official Testing of the appropriate breed registry organization reserves the right to accept or reject any records reported by the State official in charge of DHIA testing within the State and assumes full responsibility for initiating any disciplinary action concerned with records in progress or already accepted and approved by the breed registry organization.

2. BASIC DATA

a. Identification of animals.--At the time of the first test of a herd for which an application has been filed for the acceptance of DHIR records, the DHIA supervisor must positively identify each cow in the herd by comparison of the color markings or tattoo mark in the ear with the registry certificate and must make sure that all registered cows owned by the applicant are tested. New cows entering the herd by purchase or freshening must be similarly identified at the time of their first test supervision.

b. Supplemental identification.--Supplemental identification such as numbers on sealed collars or sealed neck-chains, numbers branded on the cows, or other permanent non-transferable identification marks that have been properly cross-checked with the registration certificates, may be used for positive identification at succeeding monthly test supervisions. Unless such suitable supplemental identification is provided and maintained by the owner, the registration certificates must be used at each monthly test for identification of all animals tested. The DHIA supervisor will be held responsible for the absolute accuracy of identification of all cows tested at each test period.

c. The DHIA supervisor.--The DHIA supervisor will be responsible for reporting each month any change in status of each cow in the herd, such as calving date, purchase date, date of sale and for what purpose, or other dates affecting the production record of each animal, as well as the milk production and butterfat test of each cow during the test period. He shall also report any unusual or abnormal conditions that may affect the reliability of the test and any violations of the rules by the owner or attendants shall be reported immediately by the DHIA supervisor to the State official in charge of DHIA testing within the State.

d. The herd owner.--The herd owner shall be responsible for providing, at the time of each monthly test, all basic data needed by the supervisor for a complete and accurate report on each cow in the herd. He shall also be responsible for supplying the supervisor with complete information on cows removed from the herd.

e. Cancellation of certificate of registry.--For information write respective breed registry organization.

3. SURPRISE TESTS

(See DHIA Rule 18.)

4. AVAILABILITY OF DATA

Uniform production data and other data pertinent to the production records shall be provided to the appropriate breed registry organization from the State or regional DHIA processing laboratory on all registered cows in herds enrolled in the DHIR testing program. The Processing Laboratory shall make two reports for each cow. The first of these reports shall include any and all production for a lactation up to 305 days in length; reports of such lactation records shall be forwarded to the breed registry organization at monthly intervals. The other report shall include all production from date of freshening or date of entering the herd to dry date or to date of disposal; reports of such records shall be forwarded at intervals of not more than 90 days. These reports shall be transmitted by the State or regional DHIA Processing Laboratory to the breed registry organizations on PDCA Form No. 1.

In the electronic processing and calculation of production records, the milk weights of each milking shall be added electronically to obtain daily milk weights, the days in the testing period shall be electronically computed from the dates reported, and 305-day and total lactation records shall be electronically computed and reported only after the cow has actually milked 305 days or has completed her lactation.

5. COSTS FOR DHIR TESTING

Each breed organization shall set its own fees for entering a herd on DHIR test. It shall be an annual fee, payable at the time of application, and at yearly intervals thereafter. Notice shall be given by the breed registry organization to the State official in charge of DHIA testing when a breeder has made application for DHIR testing.

Breed	Annual testing fee per herd	Per cow per year
Ayrshire	----	$2.00
Brown Swiss	$ 3.00	1.00
Guernsey	5.00	2.25
Holstein	10.00	1.50
Jersey	15.00	2.00

6. DISHONEST OR FRAUDULENT PRACTICE

If the State Superintendent of Official Testing is satisfied that dishonest or fraudulent practices have been used in making official records, he must report same to the breed registry organization. If the Superintendent of Official Testing of the breed registry organization is convinced that any dishonest or fraudulent practices have been employed in the making of the records, he may refuse to approve the test. If the records have been accepted and the certificates issued, the Board of Directors or the Executive Committee may, after due notice is given and a hearing held, cancel such certificates and expunge the records.

7. RIGHT OF SEARCH

The supervisor has the right to search the milker at any time. Refusal on the part of the milker will be construed as evidence of intent to make a fraudulent test.

8. BONUSES NOT ALLOWED

Payment of herd or barn bonuses to milkers may be permitted if based on total milk sold. The payment of a bonus based on production for individual cows on test is prohibited.

9. GUARANTY TO COLLEGES

The breed associations, under the DHIR program, will guarantee to the State Colleges supervising the program payment for surprise tests and any supervisory office fees not in excess of three (3) months related to DHIR. The payment of monthly DHIA tests is not covered under this guaranty for herds on DHIR.

10. OFFICIAL TESTING A PRIVILEGE

The acceptance of tests for official testing is at the discretion of the breed registry organization, and is not a matter of right accorded a member, but is a privilege to be granted or refused at the discretion of the breed registry organization.

11. REVISION OF RULES

Any revision of these rules shall be made by a joint committee of The Purebred Dairy Cattle Association and The American Dairy Science Association, but must be approved by the Executive Committee or Board of Directors of the respective breed registry organizations.

12. MATTERS NOT COVERED BY RULES

Matters not covered by these rules shall be administered by the respective Superintendents of Official Testing of the breed registry organizations and their decisions shall be final.

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RECORD BOOK
A plan for every size herd
STANDARD DHIA OWNER SAMPLER WEIGH-A-DAY-A-MONTH
AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

ARS-44-171
Dairy-Herd-Improvement Letter (Vol. 41, No. 8)

November-December 1965

IMPROVEMENTS IN METHODS OF SIRE EVALUATION

Several improvements were made in the methods of sire evaluation by the USDA in 1965.

Sire Summary List

An improvement included in the February Sire Summary List was to change the schedule for using short records. Currently reported lactation records are accepted into master files and used in the sire summaries only if the interval from calving date to production-run date exceeds 364 days. The interval was tested and shown to be effective in reducing the high incidence of incomplete records in early sire summaries.

The delaying procedure will reduce the downward bias in early or initial summaries of AI 1/ bulls that was reported in a recent DHI Letter (ARS-44-148). A major factor contributing to the problem appears to be an abnormally high frequency of incomplete lactation records among daughters of bulls involved. This has been noticeably evident when sires were heavily used upon entry into AI. Rejected records were set aside and will be reentered during the appropriate quarterly sire summary.

In May, the "Predicted Difference" was first used. The predicted difference represents the expected deviation of a bull's AI progeny from herdmates in herds producing at levels near breed average, and is currently the most useful method of comparing AI bulls. It replaces the "Predicted Average" which

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1/ Artificial insemination.

Issued February 1966

was used from December 1962 to February 1965, for AI sires, and is computed as follows:

$$\text{Predicted Diff.} = \frac{\text{No. of daus.}}{\text{No. of daus.} + 20} (\text{Adj.dau.av.} - \text{breed av.})$$

Thus, the only change from the predicted average is the subtraction of the breed average. With daughters scattered in many different herds, the reliability of this rating can approach maximum accuracy with a very large number of progeny. In contrast, where each bull's daughters are largely in a single herd, the accuracy of comparing sires is neither great nor materially enhanced by including more than 25 unselected progeny. The primary purpose of the predicted difference evaluation is to compare or rank AI bulls as to estimated breeding value. It is the most reliable method currently available for this purpose. It is useful to individual dairymen choosing AI sires since a given number of bulls will rank similarly in breeding value both within a herd and throughout a large number of herds.

The August Sire Summary List included several improvements, one of which is the use of new 305-day extension factors. All incomplete lactations used in current sire summaries were projected to a 305-day basis by use of these new and more complete factors. These factors allow for difference in breed, age, and milk and fat production. They were published in the August 1965 DHI Letter (ARS-44-164).

Use of a moving 2-year U.S. breed average was begun in August. Previously, the predicted difference had been calculated using a moving 5-year U.S. breed average. Consistently, the 5-year breed averages have been considerably below the production level of the herdmates of the daughters of summarized bulls. To correct this discrepancy and express the predicted differences in terms of current production levels, summaries are now being computed using the current 2-year U.S. breed average.

The values to be used through May 1966 are the average for all cows calving in 1962 and 1963 as follows:

DHIA Breed Averages [2] (1962-63)

	Milk (Pounds)	Percent	Fat (Pounds)
Ayrshire	10,313	4.03	416
Guernsey	9,003	4.75	428
Holstein	13,059	3.64	476
Jersey	8,312	5.11	425
Brown Swiss	11,384	4.08	464
Milking Shorthorn	8,971	3.77	338
Red Dane	11,069	3.99	442
Red Poll	7,664	4.03	309

---

[2] Adjusted to a 2X, 305-day, M.E. (Mature equivalent) basis.

Unadjusted daughter-herdmate differences are no longer printed for bulls with sufficient AI daughters to permit the computation of predicted differences. Experience has shown that the predicted difference is superior as a measure of an AI sire's breeding merit. This will eliminate the confusion possibly resulting from two expressions of deviation in the same sire summary.

Regional breed-year-season [3] averages were calculated to replace U.S. breed-season averages. Previously, the USDA standardized herdmate averages by using an "adjusted" herdmate (H.M.) average based on (1) the unadjusted herdmate production (2X, 305-day, M.E.), (2) the number of herdmates, and (3) the moving 5-year U.S. breed-season average:

$$\text{Adj. H.M. av.} = \text{U.S. breed-season av.} + \frac{\text{No. H.M.}}{\text{No. H.M.} + 1}\,(\text{Unadj. H.M. av.} - \text{U.S. breed-season av.})$$

If the mean production of all cows calving in an area in a period of time differs from the U.S. average, the adjusted herdmate averages for the corresponding lactations will be biased by the amount determined by the following equation:

---

[3] An average was computed for each possible combination of regions, breeds, years, and seasons (within year).

$$\frac{\text{Regional breed-season average - U.S. breed-season average}}{\text{No. herdmates + 1}}$$

This bias will be small except where there are few herdmates and where there are large regional deviations from breed average, but they might create inconsistencies between bulls evaluated solely in one region. For example, AI bulls averaging about 20 herdmates per daughter in an area that deviates from the national average by +2,000 pounds of milk will have their evaluations over-estimated approximately 100 pounds. Rather than use a single U.S. breed average, the change uses 14 regional groupings of breed-year-season averages for Holsteins, 4 for Guernseys and Jerseys, and 3 for Ayrshires and Brown Swiss. National breed-season averages are still used for the Milking Shorthorn, Red Dane, and Red Poll breeds because of the limited number of observations available. The States included in each regional breed classification are published in the DHIA Sire Summary List for August 1965, ARS-44-165.

It is well known that the relative accuracy of AI sire evaluations increases with a greater number of daughters. The value $\frac{\text{No. of daughters}}{\text{No. of daughters + 12}}$ has been used by the USDA since 1962 as an index of accuracy for AI progeny tests. Recent studies have consistently shown observed relationships between successive proofs to be lower than those expected from theoretical computations.

A change was made in the adjustment for number of AI daughters after analyses were made by the USDA. A large sample of data representing the entire United States was used in these analyses. The sample was much more extensive than that used in previous studies. This research showed that the value $\frac{\text{No. of daughters}}{\text{No. of daughters + 20}}$ more adequately reflects the true accuracy of AI sire evaluations as measured by the group regression of future daughters on an early group of daughters. This change has the effect of placing slightly less reliability on sire evaluations based on small numbers of progeny as shown below:

Number of daughters	New USDA regression $\left(\frac{n}{n + 20}\right)$	Old USDA regression $\left(\frac{n}{n + 12}\right)$
10	0.33	0.45
20	.50	.63
30	.60	.71
50	.71	.81
75	.79	.86
100	.83	.89
200	.91	.94
500	.96	.98
1,000	.98	.99

Cow Performance Index List

The progeny of both AI and non-AI bulls were included in the two Cow Performance Index Lists (ARS-44-160 and ARS-44-170) computed during the year. Daughters of non-AI bulls were evaluated solely on the basis of their own performance versus herdmates. In the case of AI progeny, both performance of daughters versus herdmates and performance of the sire were included in the index.

The name and address of the herd owner were included in the Cow Performance Index List if the cow was from a herd whose records were machine-processed.

4,984 SIRES SUMMARIZED IN AUGUST 1965

A total of 994 AI and 3,990 non-AI sires were evaluated in August 1965. The evaluations included 359,112 daughters with herdmates; resulted in 14,917 individual sire records, which were provided to the cooperating States; and represented 345,453 records reported since the previous summary. A summary of the number of sire records (DHIA-1202 Forms) provided to the States in August 1965 is shown in table 1.

3,650 SIRES SUMMARISED IN NOVEMBER 1965

A total of 980 AI and 2,670 non-AI sires were evaluated in November 1965. The evaluations included 249,553 daughters with herdmates and resulted in 10,893 individual sire records, which were provided to the cooperating States. Records reported since the previous summary numbered 611,332. A summary of the number of sire records (DHIA-1202 Forms) provided to the States in December 1965 is shown in table 2.

TABLE 1.--Number of sire records summarized 08-65, by State, by breed

State	Ayrshire	Guernsey	Holstein	Jersey	Brown Swiss	Shorthorn	Red Dane	Other	Red Poll	Total
	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number
Maine	13	31	118	24	4	3	-	-	-	193
New Hampshire	26	25	127	32	9	-	-	-	-	219
Vermont	24	39	246	75	15	-	-	-	-	399
Massachusetts	29	53	209	45	15	1	-	-	-	352
Rhode Island	12	13	80	7	-	-	-	-	-	112
Connecticut	23	73	213	22	13	-	-	-	-	344
New York	44	104	599	84	30	-	1	-	-	862
New Jersey	5	69	235	28	17	-	-	-	-	354
Pennsylvania	33	176	497	61	26	5	-	-	-	798
Ohio	29	86	362	84	51	4	-	-	-	616
Indiana	13	90	254	48	36	6	1	-	-	448
Illinois	24	99	332	46	51	7	-	-	-	559
Michigan	14	63	482	43	32	7	4	-	-	645
Wisconsin	20	136	594	52	50	9	-	-	1	862
Minnesota	32	75	377	51	39	11	-	-	-	585
Iowa	36	84	371	72	46	19	-	-	-	628
Missouri	-	44	176	36	7	9	-	-	-	272
North Dakota	-	10	88	1	12	1	-	-	-	112
South Dakota	11	7	135	11	13	-	-	-	-	177
Nebraska	7	38	161	16	22	13	-	-	-	257
Kansas	29	47	221	35	20	8	-	-	-	360
Delaware	7	16	78	5	4	-	-	-	-	110
Maryland	21	69	286	18	23	2	-	-	-	419
Virginia	20	97	312	22	16	-	-	-	-	467
West Virginia	8	12	107	14	1	-	-	-	-	142
North Carolina	12	63	237	59	9	-	-	-	-	380
South Carolina	4	79	133	51	14	-	-	-	-	281
Georgia	13	31	161	35	14	-	-	-	-	254
Florida	6	66	90	51	7	-	-	-	-	220
Kentucky	5	25	181	28	11	-	-	-	-	250
Tennessee	14	65	123	71	27	4	-	-	-	304
Alabama	8	31	104	47	11	-	-	-	-	201
Mississippi	13	42	49	49	11	-	-	-	-	164
Arkansas	4	15	89	14	1	5	-	-	-	128
Louisiana	-	38	45	19	4	-	-	-	-	106
Oklahoma	13	39	140	23	8	12	-	-	-	235
Texas	9	24	179	64	8	-	-	-	-	284
Montana	2	2	43	2	4	-	-	-	-	53
Idaho	2	28	150	30	6	-	-	-	-	216
Wyoming	-	2	20	-	1	-	-	-	-	23
Colorado	4	25	124	9	16	2	-	-	-	180
New Mexico	-	18	47	14	-	-	-	-	-	79
Arizona	-	31	96	4	-	-	-	-	-	131
Utah	5	19	129	14	1	-	-	-	-	168
Nevada	-	-	21	18	1	-	-	-	-	40
Washington	16	58	169	41	8	5	-	-	-	297
Oregon	5	42	105	45	10	3	-	-	-	210
California	10	38	288	32	16	-	-	-	-	384
Puerto Rico	-	-	8	-	-	-	-	-	-	8
Hawaii	-	-	12	-	-	-	-	-	-	12
Alaska	-	-	4	-	13	-	-	-	-	17
Total sire records sent to States										14,917
Sire records summarized	175	908	2,992	624	218	62	4	-	1	4,984

TABLE 2.--Number of sire records summarized 11-65, by State, by breed

State	Ayrshire	Guernsey	Holstein	Jersey	Brown Swiss	Shorthorn	Red Dane	Other	Red Poll	Total
	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number
Maine----------------	8	28	91	23	5	1	-	-	-	156
New Hampshire--------	21	21	93	25	5	3	-	-	-	168
Vermont--------------	17	37	160	51	11	-	-	-	-	276
Massachusetts--------	19	38	149	26	9	1	-	-	-	242
Rhode Island---------	10	15	45	5	-	-	-	-	-	75
Connecticut----------	13	55	132	14	11	-	-	-	-	225
New York-------------	40	72	441	53	17	1	1	-	-	625
New Jersey-----------	4	37	155	17	13	-	-	-	-	226
Pennsylvania---------	37	144	488	52	19	3	-	-	-	743
Ohio-----------------	29	83	299	92	32	4	-	-	1	540
Indiana--------------	12	95	225	40	24	6	2	-	-	404
Illinois-------------	17	85	261	31	29	2	-	-	-	425
Michigan-------------	10	78	331	35	22	3	3	-	-	482
Wisconsin------------	12	178	504	46	45	6	-	-	-	791
Minnesota------------	22	56	305	32	25	7	-	-	-	447
Iowa-----------------	19	45	289	41	31	11	-	-	-	436
Missouri-------------	-	25	122	20	6	5	-	-	-	178
North Dakota---------	-	6	68	1	11	1	-	-	-	87
South Dakota---------	14	6	79	5	9	-	-	-	-	113
Nebraska-------------	5	39	114	13	16	4	-	-	-	191
Kansas---------------	13	27	133	17	18	5	-	-	-	213
Delaware-------------	5	12	56	8	2	-	-	-	-	83
Maryland-------------	11	48	180	20	18	2	-	-	-	279
Virginia-------------	11	73	169	26	13	-	-	-	-	292
West Virginia--------	10	12	74	16	1	-	-	-	-	113
North Carolina-------	8	51	133	29	10	-	-	-	-	231
South Carolina-------	3	47	77	39	10	-	-	-	-	176
Georgia--------------	10	20	98	28	12	-	-	-	-	168
Florida--------------	5	46	57	30	7	-	-	-	-	145
Kentucky-------------	3	26	133	20	12	-	-	-	-	194
Tennessee------------	17	51	95	40	17	3	-	-	-	223
Alabama--------------	8	21	54	29	6	-	-	-	-	118
Mississippi----------	12	36	42	27	8	-	-	-	-	125
Arkansas-------------	2	16	54	6	4	4	-	-	-	86
Louisiana------------	-	54	46	15	4	-	-	-	-	119
Oklahoma-------------	9	16	75	12	7	6	-	-	-	125
Texas----------------	6	22	125	42	10	-	-	-	-	205
Montana--------------	1	4	20	4	5	1	-	-	-	35
Idaho----------------	6	23	85	20	4	-	-	-	-	138
Wyoming--------------	-	3	14	-	-	-	-	-	-	17
Colorado-------------	2	28	82	7	9	1	-	-	-	129
New Mexico-----------	-	13	33	6	-	-	-	-	-	52
Arizona--------------	-	24	49	2	1	-	-	-	-	76
Utah-----------------	3	16	80	12	-	-	-	-	-	111
Nevada---------------	-	-	14	11	2	-	-	-	-	27
Washington-----------	11	44	93	20	4	1	-	-	-	173
Oregon---------------	4	31	53	25	2	-	-	-	-	115
California-----------	13	36	175	33	12	-	-	-	-	269
Puerto Rico----------	-	-	8	-	-	-	-	-	-	8
Hawaii---------------	-	-	4	-	-	-	-	-	-	4
Alaska---------------	-	-	3	-	11	-	-	-	-	14
Total sire records sent to States---										10,893
Sire records summarized-------	135	656	2,292	430	95	38	3	-	1	3,650

LACTATION RECORD REJECTS IN 1965 ARE 7.1 PERCENT OF ALL RECORDS RECEIVED AND RECONCILED IN 1965

The relative frequency of Standard DHIA lactation record rejects in 1965 by type of reject is given in table 3.

TABLE 3.--Relative frequency of Standard DHIA lactation record rejects in 1965, listed on Form 1060

Reject code	Type of reject	Percent of all records 1/	Percent of all rejects
F	Possible twin	1.5	20.5
D	Birth date	1.4	20.1
H	Identification of parents	1.1	15.9
B	Dam number, registered	1.0	14.6
A	Sire number, registered	.9	12.2
Q	Calving date	.7	9.3
M	Eartag identification	.2	3.1
R	Unusual percent test	.1	1.7
I	Cow number, registered	.1	.9
V	Days in milk, 3X exceeds 2X	(2/)	.6
J	Same identification number, cow, sire, and/or dam	(2/)	.4
T	Production	(2/)	.2
W	Identification conflict with breed association data	(2/)	.2
C	Cow, sire, and/or dam registration number, blank or alphabetic	(2/)	.2
E	Breed	(2/)	.1
G	Herd code number	(2/)	.1
P	Production, blank and/or alpha	(2/)	(2/)
	Total	7.1	100.0

1/ Includes 86,417 reconciled records.

2/ Less than 0.05 percent.

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